HIGHLIGHTS

REVISION NO. 33 Jun 01/10

Pages which have been revised are outlined below, together with the Highlights of the Revision

CH/SE/SU C PAGES	REASON FOR CHANGE	EFFECTIVITY
CHAPTER 51		
L.E.P. 1- 1	Revised to Reflect this revision indicating new,revised, and/or deleted pages	
T. OF C. 3	Revised to reflect this revision	
51-78-00 702, 710- 713	Minor additions and amplification **ADDED MATERIAL NO. 15-009, TPS TYPE 3**	
51-80-00 201- 202, 204	Minor additions and amplification **DELETED THE REF. FOR MPD 518000-05-1**	

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CHAPTER 51

STRUCTURES

LIST OF EFFECTIVE PAGES

N, R or D indicates pages which are New, Revised or Deleted respectively
Remove and insert the affected pages and complete the Record of Revisions and the Record of Temporary Revisions as necessary

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RECORD			
OF TEMP.			
REVISION			
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T. of C.		2	Jun01/05
T. of C.	R	3	Jun01/10
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CHAPTER 51

STRUCTURES

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1. General

A. The airframe is designed and built in accordance with the failsafe principle and combines maximum structural integrity with minimum weight.

B. Most of the primary structure is made of high-strength aluminum alloy, with the exception of various components and fittings which are manufactured from steel or titanium. Weight saving and corrosion resistance are decisive factors in the selection of either steel or titanium. Materials with high fatigue resistance and favorable anti-crack propagation properties are selected for areas which are subject to additional mechanical stress. The vertical stabilizer is the only primary structure which is made completely out of advanced composites and glass fiber reinforced plastic.

C. The secondary structure employs composite materials for components in several areas of the fuselage, wing, engine pylons and the tail unit and in particular for the radome, floor panels and aerodynamic fairings. There are three main composite structure types, sandwich structures, monolithic structures and mixed structures. All structures are sealed to prevent moisture penetration.

2. Description

A. Fuselage

(1) The fuselage is of semi-monocoque construction and comprises a rigid structure of lateral frames, bulkheads and cross beams, longitudinal stringers and an outer skin. Structural components and skin are, in general, manufactured from light alloy materials.

(2) The pressurized area of the fuselage extends between the pressure bulkheads at frames 1 and 80 and includes the flight compartment, passenger, cargo and avionics compartments.

(3) Fuselage openings, e.g., doors, windows, wing and stabilizer attachment areas etc., are reinforced by additional stringers, frames, struts and skin doublers.

(4) The nose fuselage comprises sections 11 and 12 and extends from the forward tip of the nose cone (radome) to STA638. The nose fuselage includes the flight compartment, avionics compartment, forward part of the passenger compartment and the nose wheel well.

(5) The forward fuselage comprises sections 13 and 14 and extends from STA1340(FR18) to STA2294(FR40), in the upper half of the fuselage, and from STA1340(FR18) to STA2241(FR39), in the lower half of the fuselage. The forward fuselage includes part of the passenger compartment and FWD cargo compartment.

(6) The center fuselage comprises sections 15 and 21 and extends from STA2294(FR40) to STA2931(FR54). The center fuselage includes part of the passenger compartment, wing center box, main landing gear wells, and the air conditioning and hydraulic compartments.

(7) The aft fuselage comprises sections 16, 17 and 18 and extends from

STA2931(FR54) to STA4120(FR76), STGR1 thru STGR17, LH and RH, and from STA2931(FR54) to STA4362(FR80), STGR17 thru bottom centerline, LH and RH. The aft fuselage includes part of the passenger compartment and the AFT and BULK cargo compartments.

(8) The tail fuselage comprises section 19 and the tail cone and extends from STA4120(FR76) to STA4362(FR80) in area of STGR1 thru STGR17, LH and RH, and from STA4362(FR80) to frame 106. The tail fuselage includes the attach fittings for the vertical stabilizer, horizontal stabilizer cutout, rear equipment compartment, APU compartment and tail cone.

B. Engine Pylon

(1) The engine pylon comprises a main frame providing engine-to-wing attachment, and an auxiliary structure protecting the various systems coming from and going to the engine.

(2) The auxiliary structure is formed by ribs attached to the main frame and provides installation facilities for various fairings and doors giving access to the systems.

C. Stabilizers

(1) The horizontal stabilizer is a unit mounted through section 19 and supported on pivot points at STA4805(FR91). The horizontal stabilizer provides the supporting structure for the elevators.

(2) The angle of attack of the horizontal stabilizer can be adjusted in flight from the flight compartment.

(3) The horizontal stabilizer comprises a stabilizer spar box, removable leading and trailing edges, elevator attach fittings, outboard tips, inboard aprons and an integral fuel tank.

(4) The vertical stabilizer is a unit mounted on top of the fuselage tail section between STA4302(FR79) and STA4805(FR91). The vertical stabilizer provides the supporting structure for the rudder.

(5) The vertical stabilizer comprises vertical stabilizer spar box, removable leading and trailing edges and stabilizer tip.

D. Wing

(1) The wing structure comprises the wing center box and the LH and RH wings. The LH and RH wings are attached to the wing center box at their root ends.

(2) The wing center box comprises front and rear spars, transverse diaphragms, top and bottom skin panels and stiffeners.

(3) Each wing comprises a box structure formed by front and rear spars with interspar ribs, skin panels, and stringers. The wing incorporates the main landing gear support structure, engine support pylon structure, primary and secondary flight surfaces and integral fuel tanks.

PROTECTIVE TREATMENT - DESCRIPTION AND OPERATION

1. General

A. The entire structure of the aircraft is protected against corrosion and fluids used in the aircraft by a range of efficient treatments. Special attention is given to areas of high contamination, high condensation, and where different types of material are in contact. Protection against corrosion is described in 51-22-00, P. Block 1.

B. The paint coatings and sealants used are resistant to all possible contaminants throughout the entire operating temperature range. Sealant used in areas where contamination by hydraulic fluid might occur, are protected with soft varnish, resistant to hydraulic fluid. Paint coatings are described in 51-23-10, P. Block 1. Sealants are described in 51-24-00, P. Block 1.

C. The type of surface protective treatment applied to a component is dependent on the corrosion resistance, function and location of the component.

D. Various internal areas of the aircraft, subject to moisture and/or contamination by fluids, are protected, in addition to, or instead of painting, by a coating of moisture-removing oil.

2. Description

(Ref. Fig. 001, 002)

A. Surface Areas

(1) Surface protective treatments are applied to the following external areas:

(a) The entire outer surface of the aircraft.

(b) All surfaces and mountings of the rudder and flaps especially in exposed locations.

(c) The surfaces of the forward section of the wing which are exposed when slats are extended.

(d) The landing gear components which are exposed when the gear is extended.

(2) The inside of the aircraft is divided into three surface protection categories. Each category has a different surface protection requirement and is as follows:

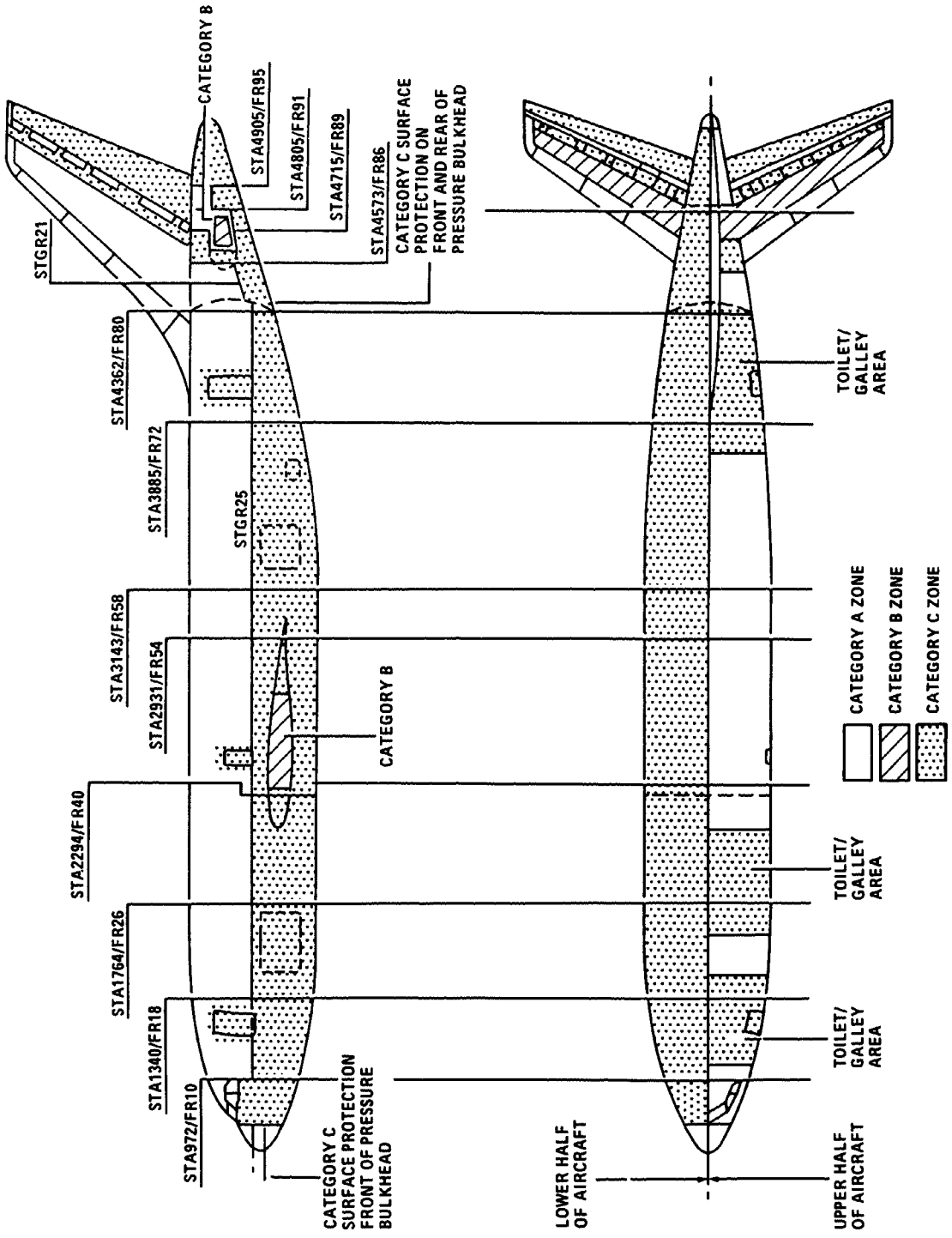
(a) Category A: Contact with both air and water

(b) Category B: Fuel tanks

(c) Category C: - Areas which can be contaminated by hydraulic fluids, lubricants and/or waste water.
- Areas where condensation forms, and/or water collects.
- Inaccessible areas.

3. Types of Surface Protection

A. General



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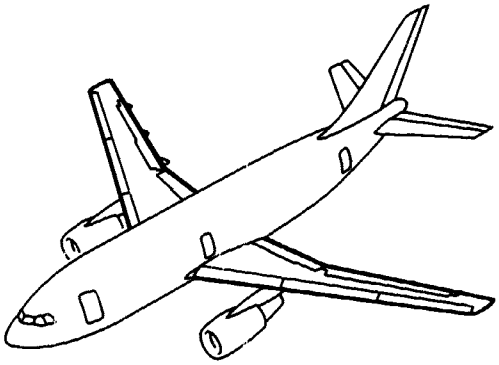
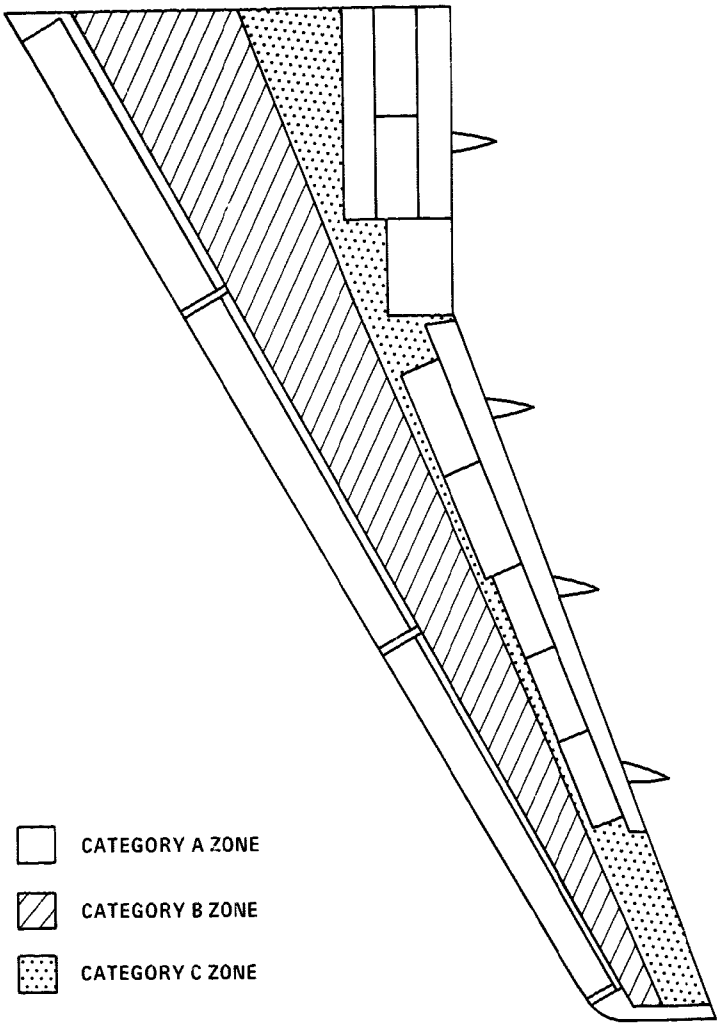
Fuselage and Stabilizer Surface Protection
Figure 001



NOTE: IN THE WING AREA BEHIND THE REAR STRUT OF THE CENTER BOX, THE MOVABLE PARTS BELONG TO CATEGORY A.



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Wing Surface Protection
Figure 002

(1)All inner and outer surfaces are treated for corrosion protection. The treatment includes a coat of primer, which contains corrosion inhibiting substances. The primer forms the basic protection and provides an undercoat for further paint coatings. For paint coatings refer to 51-23-10, P. Block 1. Parts in Category C areas have special corrosion protection requirements.
NOTE : Some parts made of corrosion resistant materials are not treated.

B. Aluminum Alloy Components
(1)Aluminum alloys are given the following protective treatment:
(a)Anodizing is used in most exposed areas or in areas in contact with water during servicing, i.e. galley and toilet areas. After anodizing the areas are further protected by primer.
(b)All aluminum alloy parts not anodized are prepared for primer painting with yellow chromate. Passivating provides a protective film of chromate.
(c)Application of a special light-reflecting flexible polyurethane paint, except fuel tanks.
NOTE : Inner surfaces which fall into Category C receive an additional polyurethane coat.
(d)Bonded assemblies which are bonded after primary treatment receive a coat of primer, those which fall into Category C receive an additional polyurethane final coat.

C. Stainless Steels
(1)Stainless steels do not normally require any protective treatment. Only when in contact with light alloys are stainless steels treated as follows:
(a)Cadmium plating, zinc spraying or chromate passivating, to avoid galvanic corrosion of the light alloys.
NOTE : An additional coat of primer is applied to those stainless steels which fall into Categories B and C.

D. Non-Stainless Steels
(1)Non-stainless steels receive the following protective treatments:
(a)Cadmium plating plus a paint finish.
(b)Phosphating plus a paint finish.
(c)Aluminum spraying.
(d)Hard chromium plating.
(e)Chemical nickel plating.
(f)Silver plating (not in contact with aluminum).
NOTE : Areas or parts subjected to frictional loads are hard chromium plated or chemically nickel plated.

E. High Tensile Steels
(1)The main steel components of the landing gear receive a chromic protective finish, followed by two coats of paint. The paint treatment comprises one coat of chromate epoxy primer and one polyurethane final coat.

F. Titanium
(1)Titanium and titanium alloys do not usually require protective treatment,

but when in contact with dissimilar metals, titanium and titanium alloys are anodized with sulfuric acid, which reduces the galvanic couple. A coat of primer and a polyurethane final coat is then applied.

G. Paint System

(1) A primer coat is applied to give protection against corrosion. The primer used for all general structures is capable of inhibiting corrosion at small areas of damage, i.e. nicks and scratches. A polyurethane final finish coat is applied which provides resistance to chemical corrosion and mechanical impact.

PROTECTION (WAX AND POLISH) OF UNPAINTED LIGHT ALLOY AREAS

WARNING : APPLY MATERIALS IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS. SOME MATERIALS ARE FLAMMABLE AND/OR TOXIC. AVOID INHALING FUMES. USE IN A WELL VENTILATED AREA. OBSERVE FIRE REGULATIONS.
SOME MATERIALS CONTAIN IRRITANTS. WEAR PROTECTIVE GLOVES AND PROTECT EYES. WASH IMMEDIATELY, WITH CLEAN WATER, IF SKIN OR EYES ARE AFFECTED.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platforms, as required
B.	Protective Gloves
C.	Protective Goggles
D.	Lint-free Cloth
E.	Cotton Wool
F.	Polishing Machines
G.	Polishing Pad
H.	Buffing Pad
J. Material No. 05-025	Special Materials (Ref. 20-31-00)
K. Material No. 11-001	Cleaning Agents (Ref. 20-31-00)

Referenced Procedure

- 51-74-10, P. Block 801	Removal of Corrosion

2. Procedure

A. Job Set-Up
(1)Position access platforms, as required.

B. Waxing and Polishing of Unpainted Light Alloy Areas
(1)Waxing and polishing by hand.

R NOTE : Do not polish or wax the slats in the unpainted areas of the
R leading edge.

NOTE : Carry out polishing in a well lit area and protect surface to be polished from sun.

(a)Remove corrosion, if present (Ref. 51-74-10, P. Block 801).
(b)Remove any contaminants (oil, etc.), clean areas with cleaning agent (Mat. No. 11-001) and dry thoroughly.
NOTE : Polish only small areas at a time.
(c)Using lint-free cloth, apply thin coat of polishing compound (Mat. No. 05-025) to surface.
(d)Carry out polishing using cotton wool.
(2)Polishing by machine.
CAUTION : DO NOT EXCEED POLISHING SPEED OF 120 RPM.

(a)Before polishing carry out steps (1) (a) thru (c).
(b)Polish using machine fitted with a polishing pad.
(c)Carry out final polishing immediately afterwards, using another polishing machine and buffing pad.
(d)Repeat polishing procedure until required surface finish is achieved.

C. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove access platforms.

1. General

A. Corrosion, its identification and elimination and the subsequent remedial maintenance action to prevent reoccurence, has a decisive influence on the operational safety and in-service capability of the aircraft.

B. Corrosion-resistant materials and protective coatings are chosen at the design stage to obtain the maximum possible resistance to corrosion. In spite of this, corrosion may occur under certain climatic conditions or through the influence of salts and contaminants.

2. Corrosion Protection

A. Surface Treatments (Galvanic or Chemical)
(1)Surface treatments may be carried out in the following manner:
(a)Yellow chromating or chromic acid anodizing for clad aluminum alloy parts, chromic acid anodizing for unclad aluminum alloy parts, and for parts to be bonded, chromic acid anodizing and bonding primer.
(b)Cadmium plating, chrome plating, or phosphating for steel parts.
(c)Cadmium, aluminum plating or chromic acid anodizing is used for titanium or stainless steels which are to be assembled to aluminum alloys.
(d)Paint Treatment
1 Paint treatment for the basic component consists of a specially developed polyurethane or epoxy primer which gives the best possible protection against corrosion and synthetic hydraulic fluids, as well as a polyurethane top coat which is particularly resistant to chemical attack.
(e)A coating of moisture-removing oil to specified areas.

B. Protection of Mating Surfaces
(1)The insertion of sealant or anti-corrosion material between parts which are to be assembled together in addition to the treatments already mentioned.
(2)Protection of the attachment parts by applying ALODINE 1200 to the rivets of light alloy assemblies, anodizing titanium parts and cadmium plating steel parts.
(3)By wet-assembling the attachment parts.
(4)By assembling and/or installing shafts with grease or anti-corrosion material.
(5)Protection of joint seams by applying a paint treatment compatible with the environmental areas or a coating of soft varnish after attachment parts are assembled.
(6)Protection of bonded edges in areas exposed to corrosion attack by applying sealant.
(7)Protection of fillet seals in areas exposed to chemical attack by applying a coating of soft varnish.

(8)Paint treatment of external surfaces. The complete external top coat of the aircraft consists of polyurethane top coat conforming to the requirements of the aircraft operator.

CORROSION - INSPECTION/CHECK

CAUTION : TRAINED PERSONNEL MUST DETERMINE THE EXTENT OF CORROSION DAMAGE BEFORE CORROSION REMOVAL AND TREATMENT OPERATIONS CAN COMMENCE (REF. 51-74-10, P. BLOCK 801).

1. Reasons for the Job

A. To detect the extent of corrosion damage.

B. To avoid the possibility of crack propagation.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platforms, as required
B.	Flashlight
C.	Inspection Mirror
D.	Magnifying Glass

Referenced Procedure
- 51-74-10, P. Block 801 — Removal of Corrosion

3. Procedure

A. Job Set-Up
(1)Position access platforms, as required.

B. Inspection
NOTE : Should a defect be suspected during the following inspection/check, an approved nondestructive test must be carried out. If a defect is subsequently proved to exist, a structural repair must be carried out, or the component must be replaced.
(1)External
(a)Inspect the whole aircraft externally, paying particular attention to the following areas:
1 Underside of fuselage, wings and horizontal stabilizer.
2 Attachment points for landing gear and primary and secondary flight controls.
3 Wheel wells and control surface shrouds.
(2)Internal
(a)Examine the aircraft internally, opening doors as necessary to gain access to all compartments, particularly under the cabin floor. Pay special attention to areas beneath the galleys, lavatories, storage areas and around and beneath water storage and lavatory waste tanks.

C. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove access platforms.

PAINT COATINGS - DESCRIPTION AND OPERATION

WARNING : APPLY MATERIALS IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS. SOME MATERIALS ARE FLAMMABLE AND/OR TOXIC. AVOID INHALING FUMES. USE IN WELL VENTILATED AREA. OBSERVE FIRE REGULATIONS.
SOME MATERIALS CONTAIN IRRITANTS. WEAR PROTECTIVE GLOVES AND PROTECT EYES. WASH IMMEDIATELY, WITH CLEAN WATER, IF SKIN OR EYES ARE AFFECTED.

CAUTION : PAINT COATINGS CONTAINING COPPER PIGMENTATION MUST NOT BE USED.

R NOTE : For build up of interior and exterior paint coatings, special coatings
R and repair of paint coatings refer to SRM (Structural Repair Manual).

R NOTE : For application of moisture-removing oil (Mat. No. 05-027) refer to 51-23-20, P. Block 1.

1. General

A. Paint is applied according to the environmental category (Ref. 51-00-00, P. Block 1) and completes the corrosion-protective treatment.

B. The numbers given below are those of materials listed in 20-31-00.

C. Painting of the structure is necessary when major assemblies are to be repainted after repairs, or when paintwork has been damaged or eroded.

2. ALODINE 1200 (Mat. No. 13-002)

A. Description
(1)ALODINE 1200 is a yellow chromating agent that is applied to aluminum and aluminum alloys to provide a surface for subsequent priming.

3. Wash Primer (Mat. No. 16-020)

A. Description
(1)Wash primer is a two-component product with metal etching and passivating characteristics.
R (2)Wash primer is not resistant to synthetic hydraulic fluids.

4. Polyurethane Primer (Mat. No. 16-001)

A. Description
(1)Polyurethane primer is a two-component product, green-yellow in color and used for all environmental categories, including aircraft exteriors.
(2)Polyurethane primer is resistant to condensation, synthetic lubricants and oil temperatures up to 70 °C (158 °F), for short periods up to 120 °C (248 °F), as well as synthetic hydraulic fluids.

5. Epoxy Primer (Mat. No. 16-006)

A. Description
(1)Epoxy primer is a two-component product with a strontium-chromate base not resistant to synthetic hydraulic fluids above 50 °C (122 °F).

6. Polyurethane Grey Top Coat (Mat. No. 16-002)

A. Description
(1)Polyurethane paint is a two-component product, and is applied directly on to epoxy primer or polyurethane primer.
(2)Polyurethane paint is resistant to condensation, synthetic lubricants and oil temperatures up to 70 °C (158 °F), for short periods up to 120 °C (248 °F), as well as synthetic hydraulic fluids.
(3)Polyurethane grey top coat is applied internally in environmental category C (Ref. 51-21-00, P. Block 1).

7. Polyurethane Finish Paint (Mat. No. 16-018)

A. Description
(1)Polyurethane finish paint is a two-component product and is applied directly on to epoxy or polyurethane primer.
(2)The design, color and layout of the decorative paint work conforms to the requirements of the aircraft operator.
(3)Polyurethane paint is resistant to condensation, synthetic lubricants and oil temperatures up to 70 -C (158 -F), for short periods up to 120 -C (248 -F), as well as synthetic hydraulic fluids.

8. Top Coat (COROGARD EC-843-S) (Mat. No. 07-004)

CAUTION : SYNTHETIC GREASE (MAT. NO. 04-004) MUST NOT BE USED IN AREAS WHERE COROGARD EC-843-S IS APPLIED.

A. Description
(1)COROGARD EC-843-S is a corrosion resistant and fluid repellent two-component lacquer with a synthetic resin base, which is applied to the upper skin of the wings and stabilizers.

SPECIAL COATINGS - DESCRIPTION AND OPERATION

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R NOTE : For build up of interior and exterior paint coatings, special coatings
R and repair of paint coatings refer to SRM (Structural Repair Manual)

1. General

A. This topic deals with surface coatings, which differ from the paints described in section 51-23-10, P. Block 1.

B. The material numbers given below are those of materials listed in 20-31-00.

2. Corrosion-Preventive Compound (Mat. No. 05-005)

A. Description
(1)Corrosion-preventive compound is a dark brown, wax-like, self-hardening coating, applied on top of moisture-removing oil to all fasteners and to unpainted cadmium plated steel parts.
NOTE : Corrosion-preventive compound is not normally applied to aluminum fasteners.

3. Moisture-Removing Oil (Mat. No. 05-027)

CAUTION : NOT TO BE USED ON OXYGEN SYSTEMS AND NOT TO BE BROUGHT INTO CONTACT WITH FIRE SENSING CABLE CONNECTIONS.

A. Description
(1)Moisture-removing oil is used to preserve component parts, especially in areas that are difficult to reach, and specific areas.
(2)In specific areas, sealant is covered by moisture-removing oil.
(3)The materials are free of silicone, organically bound and have a mineral oil base which repels moisture.

4. Pore Filler (Mat. No. 08-008)

A. Description
(1)Pore filler is a two or three component product, which is used to fill the microscopic pores in resin-fiber components prior to painting to ensure a satisfactory paint finish.

5. Abrasion-Resistant Coating (Mat. No. 07-003)

A. Description
(1)The abrasion-resistant coating is a two-component product, with a polyurethane base, applied to component parts which are subjected to mechanical abrasion, e.g. the sealing section of the passenger doors.

6. Conductive Lacquer (Middle-Ohmic) (Mat. No. 07-005)

A. Description
(1)The electrically conductive lacquer is a two-component product, with a polyurethane base, used to conduct static charges away from composite components.
(2)The lacquer is resistant to condensation, synthetic greases and oils, and to temperatures up to 120°C (248°F).

7. Conductive Lacquer (High-Ohmic) (Mat. No. 07-006)

A. Description
(1)The high-ohmic conductive lacquer is an electrically conductive two-component lacquer with a polyurethane base, and is used to conduct static charges away from composite components in the antenna area (megohm range).

8. Nylon Coating for Sealant Beads (Mat. No. 16-003)

A. Description
(1)Sealant bead lacquer is a clear, nylon-based protective coating. To make nylon coating visible, red dye (Mat. No. 05-046) is added.
(2)The nylon coating is resistant to fuel, hydraulic fluid, lubricants, water and salt spray and adheres well to metals and other substances.

9. Erosion Protection Lacquer (Anti-Static) (Mat. No. 16-012)

A. Description
(1)The erosion protection lacquer (anti-static) is a polyurethane-based, two-component product of high elasticity and is applied to resin-fiber composite components such as the stabilizer leading edges and stabilizer tips, which are subject to erosion.

10. Erosion Protection Lacquer (Non-conductive) (Mat. No. 16-013)

A. Description
(1)The erosion protection lacquer (non-conductive) is a two-component product, with a polyurethane base, and serves to obtain the required total thickness of the erosion protection lacquer (anti-static).

11. High Temperature Lacquer (Mat. No. 16-004)

A. Description
(1)The high temperature lacquer is a single component lacquer with a silicone resin base. It is resistant to temperatures up to 500°C (932°F), and is applied to the titanium skin of the pylons.

12. Lacquer (F427-2932)

A. Description
(1)The horizontal stabilizer center spar box is sealed externally with

sealant (Mat. No. 09-032). To protect the sealant from synthetic hydraulic fluids nylon coating (Mat. No. 16-003) is applied.

(2)Two coats of lacquer are applied to all sharp edges of the horizontal stabilizer center spar box.

R NOTE : For exterior paint coatings refer to 51-23-10, P. Block 1.

R 13. Tedlar Foil

A. Description

(1)To improve moisture resistance, Tedlar foil is incorporated during final lay-up of the following: Fairings 513AL and 613AR; Panels 575BT, 675BT and to the wing leading edge.

1. General

A. Sealing and jointing compounds are used throughout the aircraft structure. Depending on their type and location they serve to seal components and to prevent corrosion, or a combination of both.

B. Sealing compounds are used to seal necessary breaks in the pressurized zone e.g. windows or servicing access panels and also fuel tanks, external panel joints and wherever it is required to control the ingress or egress of liquids and gases.

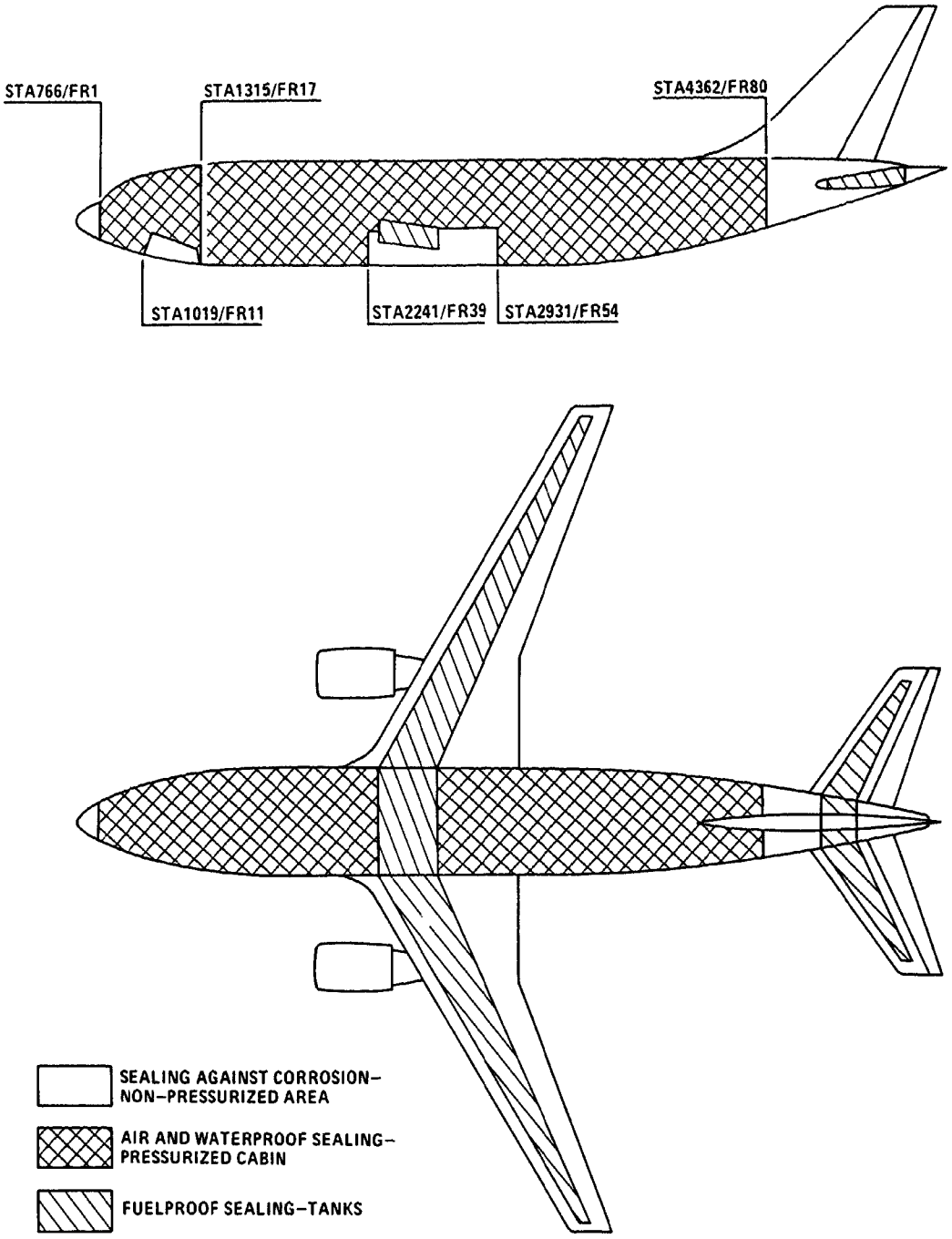
C. Jointing compounds are used primarily as a corrosion preventive measure where dissimilar metals are joined, and to prevent fretting at metal to metal joints.

D. Sealing is effected by applying a plastic sealing or jointing compound, to crevices, corners and joints of the structural components to be sealed. The type of compound depends on the location, the agent which is to be sealed against and the prevalent temperature at the sealing location.

2. Description

A. Sealing of the Structure
(Ref. Fig. 001)
(1) For the purpose of sealing, the aircraft is divided into three main areas: pressurized area, non-pressurized area and fuel tank system.
(a) The pressurized areas comprise the fuselage from STA766(FR1) to STA4362(FR80) with the exception of the landing gear wells, wing center box, air conditioning and hydraulic compartments.
(b) The non-pressurized areas comprise the landing gear wells, wing center box, air conditioning and hydraulic compartments, the tail section including tail cone STA4362(FR80) to STA5151(FR103) vertical and horizontal stabilizers and the leading and trailing areas of the wing.
(c) The fuel tank system comprises the major area of the wing box sections, the wing center torsion box and the entire spar box area of the horizontal stabilizer.

B. Application
(1) The relevant manufacturers instructions regarding handling, mixing, pot life and application must be strictly adhered to.



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Definition of Sealing Areas
Figure 001

REPAIR OF MINOR DAMAGE

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CAUTION : FOR THE REPAIR PROCEDURE FOR CRACKS REFER TO THE RELEVANT REPAIR TOPIC IN THE STRUCTURAL REPAIR MANUAL.

NOTE : For removal of corrosion refer to 51-74-10, P. Block 801.

1. Reasons for the Job

A. Removal of scratches, marks and dents from aluminum alloys, titanium and steel

B. Necessary repairs as determined during inspection/check

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platforms, as required
B.	Brush
C.	Burnisher
D.	Grinding Wheel
E.	Nonmetallic Scraper
F.	Pipette, 10 ml
G.	Rubber Gloves
H.	Steel Roller
J.	Lint-free Cloth
K.	Emery Cloth
L.	Masking Paper
M.	Masking Tape
N. Material No. 04-012	Common Greases (Ref. 20-31-00)
P. Material No. 05-025	Special Materials (Ref. 20-31-00)
R Q. Material No. 05-051	Special Materials (Ref. 20-31-00)
R. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
S.	Chromic Oxide
T.	Distilled Water
U.	Potassium Nitrate
V.	Sodium Hydroxide

Referenced Procedures

- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings Structural Repair Manual

3. Procedure

A. Job Set-Up
(1)Position access platform, as required.
(2)Cover area not to be reworked, using masking paper and masking tape.

B. Determining Repair Procedure
(1)Scratches or marks in clad sheets which extend beyond the cladding must be treated.
(2)Use the following test method to determine whether a scratch or mark has penetrated the cladding.
(a)Clean surface to be tested with cleaning agent (Mat. No. 11-004).
WARNING : RUBBER GLOVES MUST BE WORN.
(b)Make up the following test solution:
- 20 g (0.70 oz.) potassium nitrate
- 10 g (0.35 oz.) sodium hydroxide
- 100 ccm (0.2 US pints) distilled water
CAUTION : TEST SOLUTION IS CORROSIVE.
(c)Using a pipette, apply 3 or 4 drops of the solution to the scratch.
(d)Allow the solution to react for approx. 1 to 2 minutes. If the scratch has penetrated the cladding, the exposed alloy turns black.
(e)Immediately following the test, neutralize the test solution with a 5 percent chromic oxide solution.

C. Removal of Scratches and Marks from Aluminum Clad and Unclad Sheets
(1)Remove corrosion, if present (Ref. 51-74-10, P. Block 801).
(2)Remove scratches and marks from unclad components.
(a)Clean area to be reworked with cleaning agent (Mat. No. 11-004) using a clean, lint-free cloth or a brush.
(b)Remove scratches and marks mechanically by grinding or manually with abrasive polish (Mat. No. 05-025) to form a shallow depression as deep as the original defect.
(c)Clean reworked area with cleaning agent (Mat. No. 11-004).
(d)Apply appropriate surface protection (Ref. 51-75-10, P. Block 801).
(3)Removal of scratches and marks which have not penetrated cladding
(a)Clean area to be reworked with cleaning agent (Mat. No. 11-004), using a clean, lint-free cloth or a brush.
(b)Remove scratches and marks using a burnisher or a steel roller, and common grease (Mat. No. 04-012).
1 Scratches and marks must be longitudinally treated until the surface with the laterally forced-out cladding is sealed again.
(c)Clean reworked area with cleaning agent (Mat. No. 11-004).
(d)Apply appropriate surface protection (Ref. 51-75-10, P. Block 801).

(4)Removal of scratches and marks which have penetrated cladding
(a)Clean area to be reworked with cleaning agent (Mat. No. 11-004), using a clean, lint-free cloth or a brush.
(b)Measure the damage depth.
1 For tolerances refer to the relevant Inspection/Check topic.
(c)Clean reworked area with cleaning agent (Mat. No. 11-004).
(d)Apply appropriate surface protection (Ref. 51-75-10, P. Block 801).

D. Removal of Scratches and Marks from Titanium, Aluminum Forgings and Steel
CAUTION : DUE TO THE FLAMMABLE NATURE OF TITANIUM DUST, ABRADING OF TITANIUM MUST ALWAYS BE CARRIED OUT USING WATER.
(1)Remove damage using a grinding wheel or emery cloth.
(2)Polish in a longitudinal direction using a clean, lint-free cloth and abrasive polish (Mat. No. 05-025).
(3)Clean reworked area with cleaning agent (Mat. No. 11-004).
(4)Apply appropriate surface protection (Ref. 51-75-10, P. Block 801).

E. Repair of Minor Dents in Skin Panels
(1)For tolerances refer to the relevant Inspection/Check topic.
(2)Dress out dents, if aluminum clad sheets are not thicker than 1.6 mm (0.063 in.).
(3)Inspect repair using an approved nondestructive test method.
(a)If crack formation is subsequently proved to exist, a structural repair must be carried out or the component must be replaced.
(4)Apply appropriate surface protection (Ref. 51-75-10, P. Block 801).
(5)Dents which cannot be dressed out, but lie within the repairable limits, can be filled. Restore the aircraft's original contours.
NOTE : The restoration of the fuselage skin contour is only for minor aerodynamic aspects.
(6)Filling procedure
(a)Abrade paint in area to be reworked.
(b)Clean abraded area using cleaning agent (Mat. No. 11-004).
(c)Prepare aluminium filler (Mat. No. 05-051) according to manufacturer's instructions.
R CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL.
R A METAL SCRAPER CAN CAUSE DAMAGE TO THE SURFACE OF THE
R COMPONENT.
(d)Using a nonmetallic scraper apply aluminium filler (Mat. No. 05-051) to work area. Smooth to required contour.
(e)Allow filler to cure.
(f)Abrade excess aluminium filler (Mat. No. 05-051) to produce correct contour.
(g)Apply appropriate surface protection (Ref. 51-75-10, P. Block 801).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove access platforms, where used.

REMOVAL OF CORROSION

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SOME MATERIALS CONTAIN IRRITANTS. WEAR PROTECTIVE GLOVES AND PROTECT EYES. WASH IMMEDIATELY, WITH CLEAN WATER, IF SKIN OR EYES ARE AFFECTED.

R CAUTION : PERCENTAGE (%) OF ALLOWABLE DAMAGE IS ALWAYS RELATED TO THE NOMINAL
R MATERIAL THICKNESS AS SPECIFIED IN SRM (STRUCTURAL REPAIR MANUAL).

CAUTION : TRAINED PERSONNEL MUST DETERMINE THE EXTENT OF CORROSION DAMAGE BEFORE CORROSION REMOVAL AND TREATMENT OPERATIONS CAN COMMENCE.

CAUTION : ALL STRUCTURE COMPONENTS WHICH HAVE BEEN AFFECTED BY CORROSION ARE TO BE TREATED IMMEDIATELY TO AVOID THE POSSIBILITY OF CRACK PROPAGATION. IT IS VERY IMPORTANT THAT ALL DEPOSITS OF CORROSION ARE COMPLETELY REMOVED BEFORE CORROSION DAMAGE IS REPAIRED. MINOR RESIDUES CAN ACT AS STARTING POINTS FOR NEW CORROSION.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platforms, as required
B.	Blasting Equipment
C.	Brush
D.	Clean, Lint-Free Cloth
E.	Emery Cloth (Grade 240 and 400)
F.	Stainless-Steel wire Brush
G.	Nylon Brush
H.	Magnifying Glass, 10x
J.	Masking Paper
K.	Masking Tape
L.	Mild Abrasive Pad
M.	Protective Gloves
N.	Protective Goggles
P.	Rotary Files
Q.	Scraper
R.	Aluminum-oxide (80-120 microns)
S. Material No. 11-001	Cleaning Agents (Ref. 20-31-00)
T. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
U.	Potassium Dichromate ($K_2Cr_2O_7$)
V.	Chromic Acid Solution (CrO_3)
W.	Tape 3M595
X.	PE-Foil
Y.	Tape Tesadur

Referenced Procedures

- 51-21-20, P. Block 701	Protection (Wax and Polish) of Unpainted Light Alloy Areas
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 51-76-10, P. Block 801	Repair of Sealing

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2. Procedure

A. Job Set-Up
(1)Position access platforms, as required.
(2)Remove paint from corroded area.
(3)Clean and degrease corroded and surrounding area with cleaning agent (Mat. No. 11-001).
(4)Mask off surrounding area with masking tape and paper.

B. Repair
(1)Corrosion removal by mechanical method.
(a)Remove rivets from corroded area as required.
(b)Cover specific areas (Ref. Para. 4. (a)).
(c)Determine corrosion removal method from the following table:

MATERIAL	REMOVAL METHOD	
	LIGHT CORROSION	HEAVY CORROSION
Al alloys	Hand Abrasion	Rotary File, Blasting, Spot-Facing* Scraper
Carbon Steels	Hand Abrasion	Wire Brushing, Rotary File, Grinding
Ni Chrom alloys and Stainless Steel	Hand Abrasion	Wire Brushing, Rotary File, Grinding
Cadmium Plating	Hand Brushing	Wire Brushing, Rotary File, Grinding
Titanium alloys	No procedure	In case of Skydrol spillage - structural repair
* Spot-facing may be done only with manufacturers permission.		

CAUTION : DO NOT DAMAGE SEALANT BEAD IN LAP JOINTS.
(d)Remove corrosion deposits either by abrading with emery cloth and mild abrasive pad, or by blasting. Heavy deposits may be removed with a scraper or rotary files.
(e)Polish repaired area with fine emery cloth and mild abrasive pad, blending to unworked area to avoid stress peaks.
(f)Clean and degrease area with cleaning agent (Mat. No. 11-004).
(g)Ensure that corrosion is completely removed.
1 Examine with magnifying glass.
2 Check, using an appropriate nondestructive test method.
NOTE : If corrosion has not been completely removed, repeat steps (1) (d) and (e).
(h)Make certain that allowable limits are not exceeded, refer to relevant

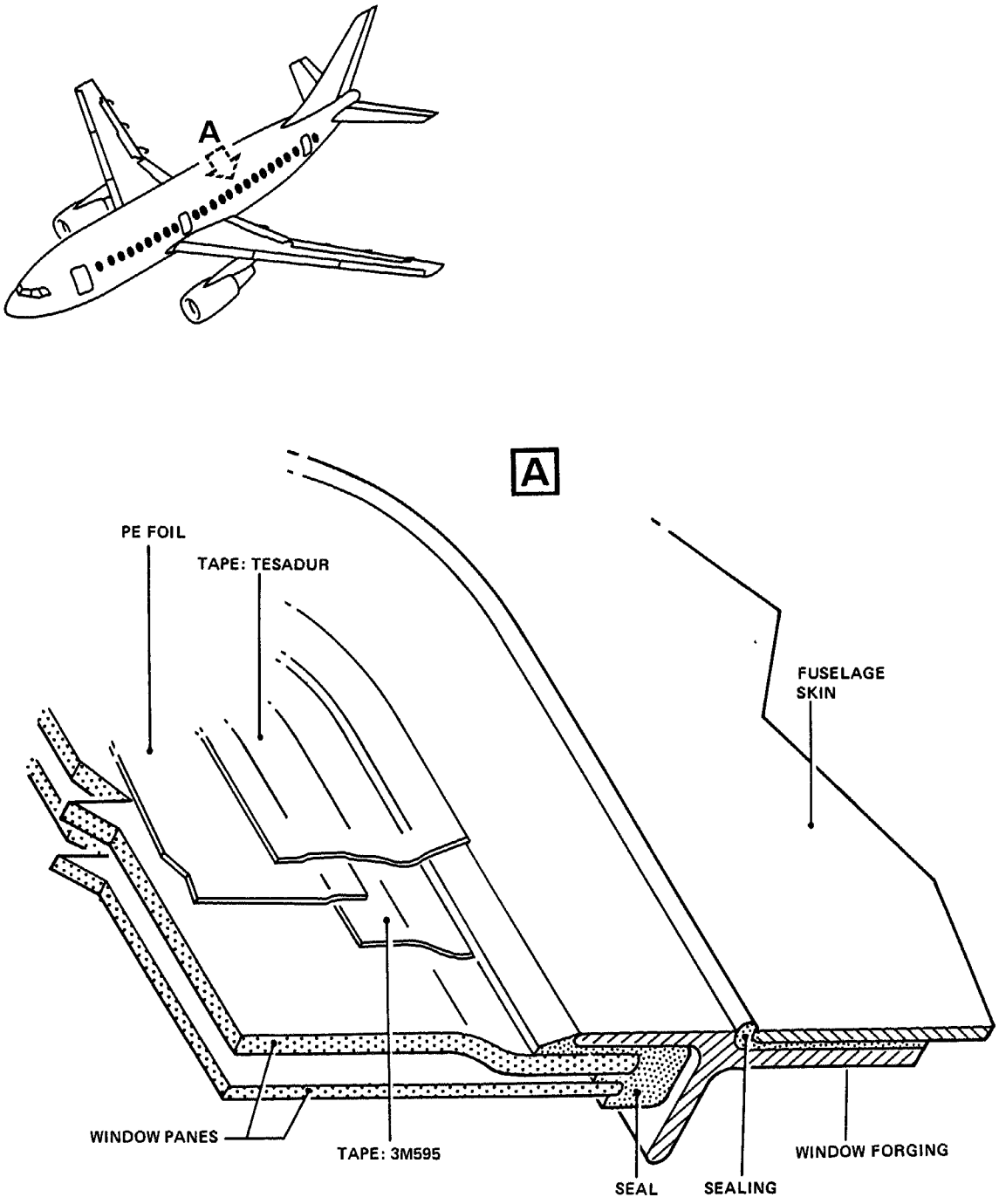
inspection/check procedures.
(j)Install new rivets as required.
(k)Carry out neutralization for aluminum alloy, as required (Ref. Para. 2. B. (2)).
NOTE : Not applicable if chemical conversion coating (Mat. No. 13-002) is to be applied.
(l)Repair sealant if necessary.
(m)Apply protective treatment and paint coatings (Ref. 51-75-10, P. Block 801).

(2)Neutralization
WARNING : NEUTRALIZING SOLUTIONS MUST NOT BE ALLOWED TO RUN INTO SEAMS, SKIN JOINTS, FAYING SURFACES OR RECESSES.
(a)Apply a solution of water and 3.3% of potassium dichromate ($K_2Cr_2O_7$) or a chromic acid solution (90 g CrO_3 per 1 l water), using a brush.
(b)When working area is completely dry flush thoroughly with clean water and remove yellow or brown discoloration, using a nylon brush.
(c)Dry with clean, lint-free cloth.

(3)Repair of corrosion damage to unpainted ligh alloy areas.
(a)Clean corrosion damage and the surrounding area with cleaning agent (Mat. No. 11-004).
(b)Remove corrosion with fine emery cloth and mild abrasive pad.
(c)Wax and polish area (Ref. 51-21-20, P. Block 701).

(4)Removal of corrosion from window forgings.
(a)Mask windows with 3M595 tape, PE-foil and Tesadur tape (Ref. Fig. 801)
(b)Remove corrosion, using blasting equipment, with aluminum-oxide, 80 - 120 microns, 4 bar (58 psi).
(c)Clean and degrease area with cleaning agent (Mat. No. 11-004).
(d)Check repair area for corrosion using magnifying glass. Repeat steps (4) (b) thru (d) if necessary.
(e)Carry out nondestructive test of repair area. Repeat steps (4) (b) and (c) if necessary.
(f)Check thickness of window forging in repair area (Ref. chap. 53).
1 If thickness of window forging is within stated limits, complete surface of window forging must be aluminum-oxide blasted to obtain an uniform clean metallic surface.
2 If thickness of window forging is not within stated limits, window forging must be replaced.
(g)Repair paint coatings as required (Ref. 51-75-10, P. Block 801).
(h)Repair sealant as required (Ref. 51-76-10, P. Block 801).

C. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove all masking tape and masking paper.
(3)Remove access platforms, as required.



Window Masking
Figure 801

REPAIR OF PAINT COATINGS

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1. Reasons for the Job

NOTE : Item letters correspond with operations in Para. 3.

A. Job Set-Up

B. Cleaning

C. Repair - General Procedure

D. Repair of Damaged Corrosion-Preventive Compound

E. Repair of Damaged Moisture-Removing Oil

F. Repair of Surface Treatment
(1)Minor paint damage (damaged top coat only)
(2)Major paint damage and surface treatment in the following:
(a)Bonded areas
(b)Non-bonded areas
(c)Resin-fiber composite areas

G. Repair of Paint Coatings on Exterior of Window Forgings

H. Repair of Paint Coatings for Lavatory, Water Service Panels and Surrounding Area

J. Cold Phosphating

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, as required
B.	Brush
C.	Emery Cloth (Grade 320)
D.	Face Mask
E.	Lint-free Cloth
F.	Masking Paper
G.	Masking Tape
H.	Nonmetallic Scraper
J.	Protective Gloves
K.	Protective Goggles
L.	Spraying Equipment
M.	Vacuum Cleaner
N. Material No. 05-005	Special Materials (Ref. 20-31-00)
P. Material No. 05-027	Special Materials (Ref. 20-31-00)
Q. Material No. 05-042	Special Materials (Ref. 20-31-00)
R. Material No. 08-008	Bonding and Adhesive Compounds (Ref. 20-31-00)
S. Material No. 11-001	Cleaning Agents (Ref. 20-31-00)
T. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
U. Material No. 13-002	Pretreatment for Painting (Ref. 20-31-00)
V. Material No. 16-001	Structure Paints (Ref. 20-31-00)
W. Material No. 16-002	Structure Paints (Ref. 20-31-00)
X. Material No. 16-006	Structure Paints (Ref. 20-31-00)
Y. Material No. 16-018	Structure Paints (Ref. 20-31-00)
Z. Material No. 16-020	Structure Paints (Ref. 20-31-00)

Referenced Procedures

- 51-23-10, P. Block 1	Paint Coatings
- 51-23-20, P. Block 1	Special Coatings
- 51-73-10, P. Block 801	Repair of Minor Damage
- 51-74-10, P. Block 801	Removal of Corrosion
- 56-21-11, P. Block 401	Passenger Compartment Window Assembly

3. Procedure

A. Job Set-Up
(1)Position access platform, as required.

B. Cleaning
R CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL.
R A METAL SCRAPER CAN CAUSE DAMAGE TO THE SURFACE OF THE COMPONENT.
(1)Remove loose deposits using nonmetallic scraper, vacuum cleaner or dry brush.
(2)Clean surface using lint-free cloth and cleaning agent (Mat. No. 11-001). Should contamination be excessive, cleaning procedure should be repeated.
(3)Remove foreign objects from depressions and edges, using a brush.
(4)Clean and degrease surface using cleaning agent (Mat. No. 11-004) and allow to dry.

C. Repair - General Procedure
(1)Clean area to be repaired.
(2)Cover undamaged area as required, using masking tape and masking paper.

D. Repair of Damaged Corrosion-Preventive Compound
(1)Cover the following items:
- Control cables
- Pulleys
- Chains and sprocket wheels
- Bearings
- Electrical Wiring
- Microswitches
- Rudder and elevator position indicator push rods
- Elastomer and plastic items
- Rubber sealing flaps of drain valves

R CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL.
R A METAL SCRAPER CAN CAUSE DAMAGE TO THE SURFACE OF THE COMPONENT.
(2)Remove damaged corrosion-preventive compound (Mat. No. 05-005) using nonmetallic scraper.
(3)Check moisture-removing oil (Mat. No. 05-027) for good condition and renew if necessary (Ref. Para. 3. E.).
NOTE : Allow moisture-removing oil (Mat. No. 05-027) to cure for approx. 1 hour before applying corrosion-preventive compound (Mat. No. 05-005).
(4)Apply corrosion-preventive compound (Mat. No. 05-005) using brush.

E. Repair of Damaged Moisture-Removing Oil
(1)Cover the following items:
- Rubber sealing flap of drain valves
- Control cables
- Pulleys
- Chains and sprocket wheels
- Bearings
- Electrical Wiring
- Microswitches

- Elastomer and plastic items
- Rudder and elevator position indicator push rods

(2)Clean and degrease surface with cleaning agent (Mat. No. 11-004).

CAUTION : MOISTURE-REMOVING OIL (MAT. NO. 05-027) MUST NOT BE USED ON OXYGEN SYSTEMS AND MUST NOT BE BROUGHT INTO CONTACT WITH FIRE SENSING CABLE CONNECTIONS.

(3)Apply coating of moisture-removing oil (Mat. No. 05-027) to specific areas (Ref. 51-23-20, P. Block 1).

F. Repair of Surface Treatment

(1)Minor paint damage (damaged top coat only)

CAUTION : TAKE CARE TO AVOID ABRADING SURFACES OF RESIN-FIBER COMPOSITE COMPONENTS.

(a)Abrade top coat down to primer using emery cloth (Grade 320). Make certain that edges of top coat are feathered.

(b)Remove abrasive grit, clean, and degrease repair area with cleaning agent (Mat. No. 11-004) and allow to dry.

(c)Apply primer and top coat, as originally used in the damaged area (Ref. 51-23-10, P. Block 1 or 51-23-20, P. Block 1).

(2)Major paint damage and surface treatment

(a)Make certain that edges of paint have been feathered and that no paint residues remain on the reworked area.

NOTE : Do not remove material from bare surface.

(b)Clean and degrease surface with cleaning agent (Mat. No. 11-004).

(c)Protect repair area (fuselage and vertical stabilizer) as follows:

1 Neutralize repair area if necessary (Ref. 51-74-10, P. Block 801).

NOTE : Not applicable if chemical conversion coating (Mat. No. 13-002) is to be applied.

2 Apply chemical conversion coating (Mat. No. 13-002) or wash primer (Mat. No. 16-020) to metal components or pore filler (Mat. No. 08-008) to resin-fiber composite components (Ref. 51-73-10, P. Block 801).

NOTE : Chemical conversion coating (Mat. No. 13-002) is preferred.

3 Apply polyurethane primer (Mat. No. 16-001).

4 Apply polyurethane finish paint (Mat. No. 16-018) to external surfaces and top coat (Mat. No. 16-002) to internal surfaces.

5 Apply moisture-removing oil (Mat. No. 05-027) as required.

6 Apply corrosion-preventive compound (Mat. No. 05-005) as required.

(d)Protect repair area (wings, horizontal stabilizer and control surfaces) as follows:

1 Apply chemical conversion coating (Mat. No. 13-002).

2 Apply epoxy primer (Mat. No. 16-006) or polyurethane primer (Mat. No. 16-001).

NOTE : If epoxy primer (Mat. No. 16-006) is applied, polyurethane primer (Mat. No. 16-001) must be applied to epoxy primer (Mat. No. 16-006).

3 Apply top coat in accordance with original paint scheme (Ref. 51-23-10, P. Block 1).

(e)Protect repair area (resin-fiber composite areas) as follows:

1 Apply pore filler (Mat. No. 08-008).

2 Apply relevant primer (Ref. 51-23-10, P. Block 1).

3 Apply top coat in accordance with original paint scheme

(Ref. 51-23-10, P. Block 1).
(f)Protect repair area (steel parts).
1 Carry out cold phosphating procedure (Ref. Para. 3. J.).
2 Apply polyurethane primer (Mat. No. 16-001).
3 Apply top coat (Mat. No. 16-002) in accordance with original color scheme.
(g)Apply moisture-removing oil (Mat. No. 05-027) if required.
(h)Apply corrosion-preventive compound (Mat. No. 05-005) if required.

G. Repair of Paint Coatings on Exterior of Window Forgings
(1)Remove window assembly (Ref. 56-21-11, P. Block 401).
(2)Remove corrosion as necessary (Ref. 51-74-10, P. Block 801).
(3)Clean and degrease repair area with cleaning agent (Mat. No. 11-004).
(4)Apply wash primer (Mat. No. 16-020).
(5)Apply polyurethane primer (Mat. No. 16-001).
(6)Apply silver polyurethane top coat (Mat. No. 16-018, RAL 9006).
NOTE : The whole exterior surface of window forging must be pretreated and painted.

H. Repair of Paint Coatings for Lavatory, Water Service Panels and Surrounding Area
(1)Remove paint as required.
(2)Remove corrosion (Ref. 51-74-10, P. Block 801).
(3)Apply wash primer (Mat. No. 16-020) or chemical conversion coating (Mat. No. 13-002).
(4)Apply polyurethane primer (Mat. No. 16-001) or epoxy primer (Mat. No. 16-006).
(5)Apply polyurethane top coat (Mat. No. 16-018).

J. Cold Phosphating
(1)Remove corrosion (Ref. 51-74-10, P. Block 801).
(2)Abrade to bare metal an area up to 20 mm (0.8 in.) around repair area.
(3)Clean and degrease area using cleaning agent (Mat. No. 11-004).
(4)Mask off surrounding area.
WARNING : PHOSPHATIC LIQUID (MAT. NO. 05-042) IS DANGEROUS.
(5)Apply phosphatic liquid (Mat. No. 05-042) evenly and liberally using a brush or clean, lint-free cloth. Allow to penetrate for 5 to 15 minutes. Surface should appear grey-white. Repeat treatment as required.
(6)Rinse with clean cloth soaked with water and dry with hot air.

K. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove coverings.
(a)Make certain that moisture-removing oil (Mat. No. 05-027) and/or corrosion-preventive compound (Mat. No. 05-005) have not contacted items covered before application.
(b)Remove moisture-removing oil (Mat. No. 05-027) and/or corrosion-preventive compound (Mat. No. 05-005) from drain holes.
(3)Remove access platform, if used.

WARNING : APPLY MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. SOME MATERIALS ARE FLAMMABLE AND/OR TOXIC. AVOID INHALING FUMES. USE IN WELL VENTILATED AREA. FIRE REGULATIONS MUST BE OBSERVED. SOME MATERIALS CONTAIN IRRITANTS. WEAR PROTECTIVE GLOVES AND PROTECT YOUR SKIN AND EYES. WASH IMMEDIATELY WITH LARGE QUANTITIES OF CLEAN WATER, IF SKIN OR EYES ARE AFFECTED, AND GET MEDICAL AID.

CAUTION : CHEMICAL PAINT STRIPPERS MUST NOT BE USED TO REMOVE PAINT FROM COMPOSITE MATERIALS. THE STRIPPERS CAN DAMAGE THE RESINS, AND CAUSE DELAMINATION OF THE COMPOSITE STRUCTURE.

1. Reason for the Job
Removal of Paint by the Application of Chemical Paint Strippers - Metallic Materials Only (Ref. Para. 3.B).

Removal of Paint by Abrasion - Composite and Metallic Materials (Ref. Para. 3.C).

2. Equipment and Materials

	ITEM	DESIGNATION
	A.	Access Platform, as required
R		
R	B.	Emery Cloth (Grades 220 and 320)
R	C.	Lint-Free Cloth
R	D.	Masking Paper
R	E.	Masking Tape
R		
R	F.	SCOTCH-BRITE Pad
R		
R	G. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)

Referenced Procedures

	- 20-31-10, P. Block 1	List of Materials Required for Aircraft Servicing and Maintenance
	- 51-23-10, P. Block 1	Paint Coatings
	- 51-76-10, P. Block 801	Repair of Sealing Beads
R	- SRM 51-75-20, P. Block 201	Stripping/Paint Removal

3. Procedure

A. Job Set-Up
(1)Position access platform, as required.

B. Removal of Paint by the Application of Chemical Paint Strippers -
R Metallic Materials Only (Ref. SRM 51-75-20, P. Block 201).

C. Removal of Paint by Abrasion - Metallic and Composite Materials

WARNING : OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE THE CLEANING AGENT (MAT. NO. 11-004). THIS CLEANING AGENT IS DANGEROUS.

CAUTION : MAKE SURE THAT THE MATERIAL SURFACES, ESPECIALLY COMPOSITES, ARE NOT DAMAGED WHEN ABRADING.

CAUTION : ENSURE THAT ALL MASKING MATERIALS ARE REMOVED FROM THE REPAIR AREA ON COMPLETION OF WORK, PAY SPECIAL ATTENTION TO PITOT HEADS AND STATIC PORTS.

NOTE : This procedure is used primarily on composite surfaces, but can also be used on metal surfaces as an alternative to chemical stripping.

NOTE : The purpose of this procedure is to remove the top coat of the paint system, either partially or completely, but not to remove the basic primer.

(1)Mask off the area adjacent to the work area with the masking paper and the masking tape.
(2)Lightly abrade the surface with the emery cloth (grade 220 or 320), until the layer of primer is fully exposed.
(3)Polish the abraded surface with a SCOTCH-BRITE pad.
(4)Use a lint-free cloth, and the cleaning agent (Mat. No. 11-004) to remove the abrasive grit, and to clean the polished area.
(5)Remove and discard the masking tape and the masking paper.
(6)If necessary, repair damaged sealing beads at skin joints (Ref. 51-76-10, P. Block 801).
(7)Inspect the areas that were masked for damaged paint.
(8)If necessary, do steps (1) thru (8) again to remove the damaged paint.

D. Close-Up

(1)Make certain that the work area is clean and clear of tools and other equipment.
(2)Make sure that all masking and plugging materials are removed from the work area. Inspect drain holes, vents, pitot heads and static ports etc. Make sure these are clear from obstruction.
(3)Remove access platform, if used.

REPAIR OF SEALING

WARNING : APPLY MATERIALS IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS AND ENVIRONMENTAL-PROTECTION REGULATIONS.

NOTE : For approved repairs of fuel tank sealing refer to 28-11-00, P. Block 801.

1. Equipment and Materials

ITEM		
A.		
B.		
C.		
D.		
E.	Material No. 05-027	Special Materials (Ref. 20-31-00)
F.	Material No. 05-046	Special Materials (Ref. 20-31-00)
G.	Material No. 09-032	Sealants (Ref. 20-31-00)
H.	Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
J.	Material No. 13-002	Pretreatment for Painting (Ref. 20-31-00)
K.	Material No. 16-002	Structure Paints (Ref. 20-31-00)
L.	Material No. 16-003	Structure Paints (Ref. 20-31-00)
M.	Material No. 16-006	Structure Paints (Ref. 20-31-00)
N.	Material No. 16-042A	Structure Paints (Ref. 20-31-00)

Referenced Procedures

- 28-11-00, P. Block 801	Tanks
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 55-00-00, P. Block 301	Stabilizers - Standard Warnings and Procedures

2. Procedure

A. Job Set-Up
(1)Position access platform, as required.

B. Removal of Sealant
R CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL.
R A METAL SCRAPER CAN CAUSE DAMAGE TO THE SURFACE OF THE
R COMPONENT.
(1)Remove damaged sealant, using nonmetallic scraper and stiff brush.
(2)Chamfer overlap area.
(a)Chamfer ends of existing sealant to ensure a minimum of 12.7 mm (0.5 in.) overlap of existing sealant.
(3)If protective treatment was damaged during removal of sealant, renew as required (Ref. 51-75-10, P. Block 801).

C. Repair of Sealant
(1)Remove damaged sealant as necessary (Ref. para. B.).
(2)Clean and degrease damaged area, using cleaning agent (Mat. No. 11-004) and a clean, lint-free cloth.
(3)Dry working area, using a clean, lint-free cloth.

(4)Apply sealant as required.
(5)Remove surplus sealant.
(6)Allow sealant to cure.
(7)Apply paint coating as required (Ref. 51-75-10, P. Block 801).
(8)Apply nylon coating (Mat. No. 16-003) to sealant beads (Ref. Para. D).

D. Repair of Nylon Coating
(1)Clean and degrease damaged area, using cleaning agent (Mat. No. 11-004) and clean, lint-free cloth.
(2)Dry working area, using clean, lint-free cloth.
NOTE : Nylon coating (Mat. No. 16-003) must be mixed with red dye (Mat. No. 05-046) to make it visible.
NOTE : Nylon coating (Mat. No. 16-003) must extend approx. 25 mm either side of the sealing material.
(3)Apply nylon coating (Mat. No. 16-003), using a brush.
(4)Allow nylon coating to cure for approx. 1 hour before application of moisture-removing oil (Mat. No. 05-027), if necessary (Ref. 51-75-10, P. Block 801).

E. Repair of Trim Tank Coating
(1)External surfaces horizontal stabilizer (center spar box and rear spar)
WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (REF. 55-00-00, P. BLOCK 301).
(a)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(b)Open access door 313AL.
(c)Repair of top coat damage (hydraulic fluid protection).
R CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL.
R A METAL SCRAPER CAN CAUSE DAMAGE TO THE SURFACE OF THE
R COMPONENT.
1 Remove damaged top coat as required using nonmetallic scraper.
2 Carefully degrease repair area using cleaning agent (Mat. No. 11-004). Overlap repair by approx 40 mm (1.6 in.).
3 Apply top coat (Mat. No. 16-042A) to repair area. Overlap existing top coat surface by approx. 40 mm (1.6 in.).
(d)Repair of sealant (vapor sealing)
R CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL.
R A METAL SCRAPER CAN CAUSE DAMAGE TO THE SURFACE OF THE
R COMPONENT.
1 Remove top coat as required using nonmetallic scraper.
R CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL.
R A METAL SCRAPER CAN CAUSE DAMAGE TO THE SURFACE OF THE
R COMPONENT.
2 Remove damaged sealant, as required, using nonmetallic scraper.
3 Repair surface protection if damaged (Ref. step (e)).
4 Chamfer ends of existing sealant to ensure a minimum of 13 mm (0.5 in.) overlap of existing sealant.
5 Clean and degrease repair area using cleaning agent (Mat. No. 11-004) and clean lint-free cloth.

6 Dry repair area using clean lint-free cloth.
7 Apply sealant (Mat. No. 09-032) as required. Thickness of sealant (Mat. No. 09-032) must be between 0.35 and 0.5 mm (0.014 and 0.02 in.).
8 Allow sealant to cure for 24 hours a 25 °C (77 °F).
9 Apply top coat as required (Ref. step (c)).

(e)Repair of surface protection

R CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL.
R A METAL SCRAPER CAN CAUSE DAMAGE TO THE SURFACE OF THE
R COMPONENT.

1 Remove top coat as required using nonmetallic scraper.
2 Remove sealant as required (Ref. step (d)).
3 Make certain that edges of paint have been feathered and that no paint residues remain on the reworked area.
NOTE : Take care not to damage A/C structural surface during paint or sealant removal operations.
4 Clean and degrease surface with cleaning agent (Mat. No. 11-004).
5 Apply chemical conversion coating (Mat. No. 13-002) to repair area.
6 Apply primer (Mat. No. 16-006) to repair area.
7 Apply sealant to repair (Ref. step (d)).
8 Apply top coat to repair (Ref. step (c)).
NOTE : All sharp corners and projections must receive two coats of top coat.

(f)Return horizontal and vertical stabilizers to normal operating condition (Ref. 55-00-00, P. Block 301).
(g)Close access door 313AL.

(2)External surfaces horizontal stabilizer (excluding center spar box and rear spar)

WARNING : STANDARD WARNINGS MUST BE OBSERVED BEFORE WORKING ON OR NEAR THE HORIZONTAL AND VERTICAL STABILIZERS (Ref. 55-00-00 P. Block 301).

(a)Make horizontal and vertical stabilizers safe (Ref. 55-00-00, P. Block 301).
(b)Make certain that edges of paint have been feathered and that no paint residues remain on the reworked area.
NOTE : Take care not to damage A/C structural surfaces during paint or sealant removal operations.
(c)Clean and degrease surface with cleaning agent (Mat. No. 11-004).
(d)Carry out cold phosphating procedure (Ref. 51-75-10, P. Block 801).
(e)Apply primer (Mat. No. 16-006).
(f)Apply top coat (Mat. No. 16-002) in accordance with original color scheme.
(g)Return horizontal and vertical stabilizers to normal operating condition (Ref. 55-00-00, P. Block 301).

F. Close-Up

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove access platform, if used.

1. General

A. This topic gives information on minor and temporary repairs to composite material components. The information is of general type only. For specification of damage limits see the relevant chapters for the components.

B. The composite materials used are glassfiber reinforced plastic, carbonfiber reinforced plastic and aramidfiber reinforced plastic.
All these materials are used in the construction of various composite structures.

C. When carrying out repairs to composite structures, the repair materials used are:
- carbonfiber materials to repair carbonfiber structure,
- glassfiber materials to repair glassfiber and aramidfiber structures.
The only exceptions are temporary repairs where metallic materials are used.

2. Structure Types

A. Sandwich Structures
(1) Many combinations of composites and metals can be used in sandwich constructions. Composite material is used for the skin of the structures which is then bonded to a metallic or nonmetallic core. The core is usually a honeycomb structure.

B. Monolithic Structures
(1) These structures have a composite material skin with internal stringers, ribs and spars. This combination gives a rigid and strong structure to which metallic fittings can be attached.

C. Mixed Structures
(1) To comply with design requirements, some composite structures are part sandwich and part monolithic.

WARNING : APPLY MATERIALS IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS. SOME MATERIALS ARE FLAMMABLE AND/OR TOXIC. AVOID INHALING FUMES. USE IN WELL VENTILATED AREA. FIRE REGULATIONS MUST BE OBSERVED. SOME MATERIALS CONTAIN IRRITANTS. WEAR PROTECTIVE GLOVES AND PROTECT EYES. WASH IMMEDIATELY, WITH CLEAN WATER, IF SKIN OR EYES ARE AFFECTED.

CAUTION : IF DAMAGE PENETRATES MORE THAN ONE LAYER, THE COMPONENT MUST BE STRUCTURALLY REPAIRED OR REPLACED.

1. Reasons for the Job

R - Repair of Composite Components with Minor Damage

R - Repair of Nonslip Surfacing

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform
B.	Vacuum Cleaner
C.	Nonmetallic Scraper
D.	Demineralized Water
E.	Emery Cloth
F.	Emery Paper, Grade 100/280/400
G.	High Speed Tape
H.	Masking Paper
J.	Masking Tape
K.	Polythene Sheet
L. Material No. 05-036	Special Materials (Ref. 20-31-00)
M. Material No. 08-001	Bonding and Adhesive Compounds (Ref. 20-31-00)
N. Material No. 08-006	Bonding and Adhesive Compounds (Ref. 20-31-00)
P. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)

Referenced Procedure	
- 51-75-10, P. Block 801	Repair of Paint Coatings

3. Procedure

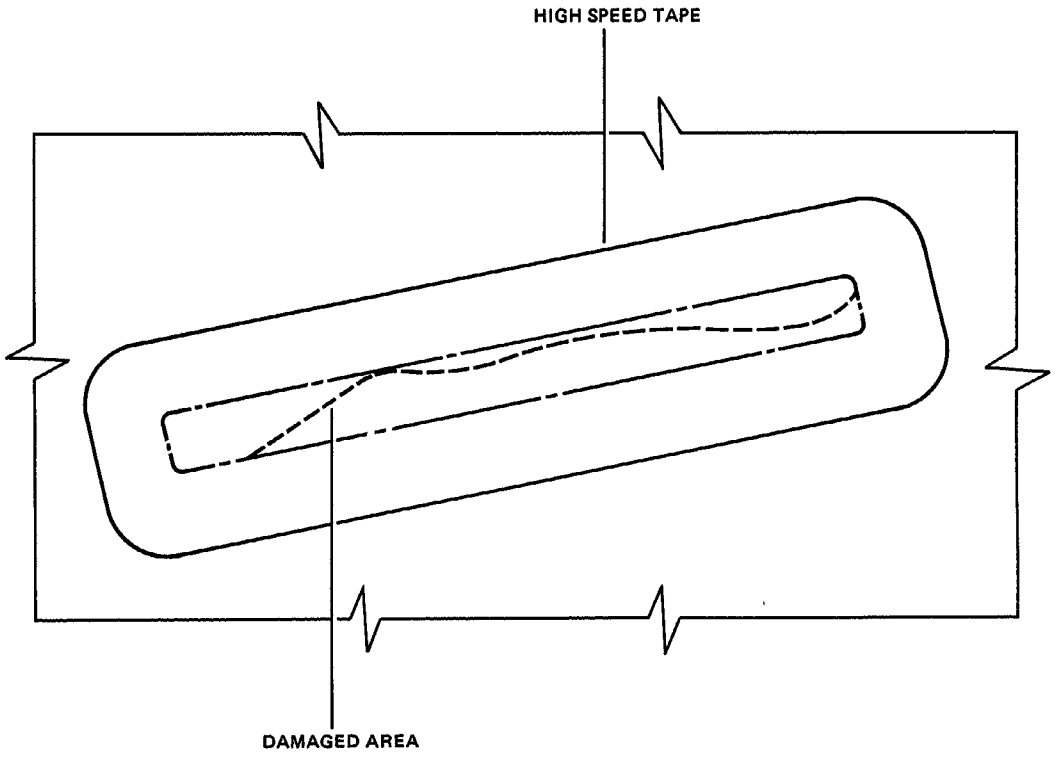
A. Job Set-Up
(1)Position access platform or access steps.
(2)Preparation of Repair Surface
(a)Cover the area adjacent to the repair area with masking paper and masking tape.
(b)Remove the surface protection and up to 50 mm (1.97 in.) around the repair area with emery paper grade 100.
(c)Remove all damaged material and laminate layers.
(d)Feather the edges of the undamaged area to give a smooth edge to the repair area.

(e)Finish off the repair area with emery paper grade 280 and emery paper grade 400.
(f)Remove all loose and unwanted material with a vacuum cleaner.
(g)Clean and degrease the repair area with cleaning agent (Mat. No. 11-004) and a lint-free cloth.
NOTE : Moisten the lint-free cloth with cleaning agent. Do not pour directly on the repair area.
(h)Clean the repair area with demineralized water and a lint-free cloth.
NOTE : Moisten the lint-free cloth with demineralized water. Do not pour directly on the repair area.
(3)Water Break Test
(a)Make sure the repair area is dry.
(b)Spray a thin coating of demineralized water on the repair area.
NOTE : A thick coating of demineralized water will not show all the defects on the repair area.
(c)Inspect the wetted surface to make sure the water forms a thin continuous coating.
(d)A defect will be indicated by the demineralised water being repelled and forming into beads.
(e)If necessary, repeat abrading, cleaning and checking processes until no defects remain.

B. Temporary Skin Repair with High Speed Tape (Ref. Fig. 801)
CAUTION : HIGH SPEED TAPE TO BE USED ONLY TO COVER SLIGHT SURFACE DAMAGE NOT PENETRATING MORE THAN ONE LAYER.
(1)Prepare repair area (Ref. para. 3.A.(2)).
(2)Apply the high speed tape to the repair area.

C. Permanent Skin Repair one Ply Depth (Ref. Fig. 802)
(1)If necessary, remove the temporary skin repair.
(2)Prepare repair area (Ref. Para. 3.A.(2)).
(3)Apply filler (Mat. No. 08-001) to repair area in accordance with manufacturer's instructions.
(4)Cover repair area with a polythene sheet.
(5)Let filler cure in accordance with manufacturer's instructions.
(6)Remove the polythene sheet when filler has cured.
(7)Rub down filler with emery paper grade 280 and emery paper grade 400 to the contours of the composite structure.
(8)Restore surface finish as required. For repair of paint coatings refer to 51-75-10, P. Block 801.

D. Repair of Nonslip Surfacing
CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL. A METAL SCRAPER CA CAUSE DAMAGE TO THE SURFACE OF THE COMPONENT.
(1)Remove damaged nonslip surfacing from panel using nonmetallic scraper.
(2)Remove old adhesive as follows:
(a)Soften old adhesive with cleaning agent (Mat. No. 11-004).
CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL. A METAL SCRAPER CA CAUSE DAMAGE TO THE SURFACE OF THE COMPONENT.



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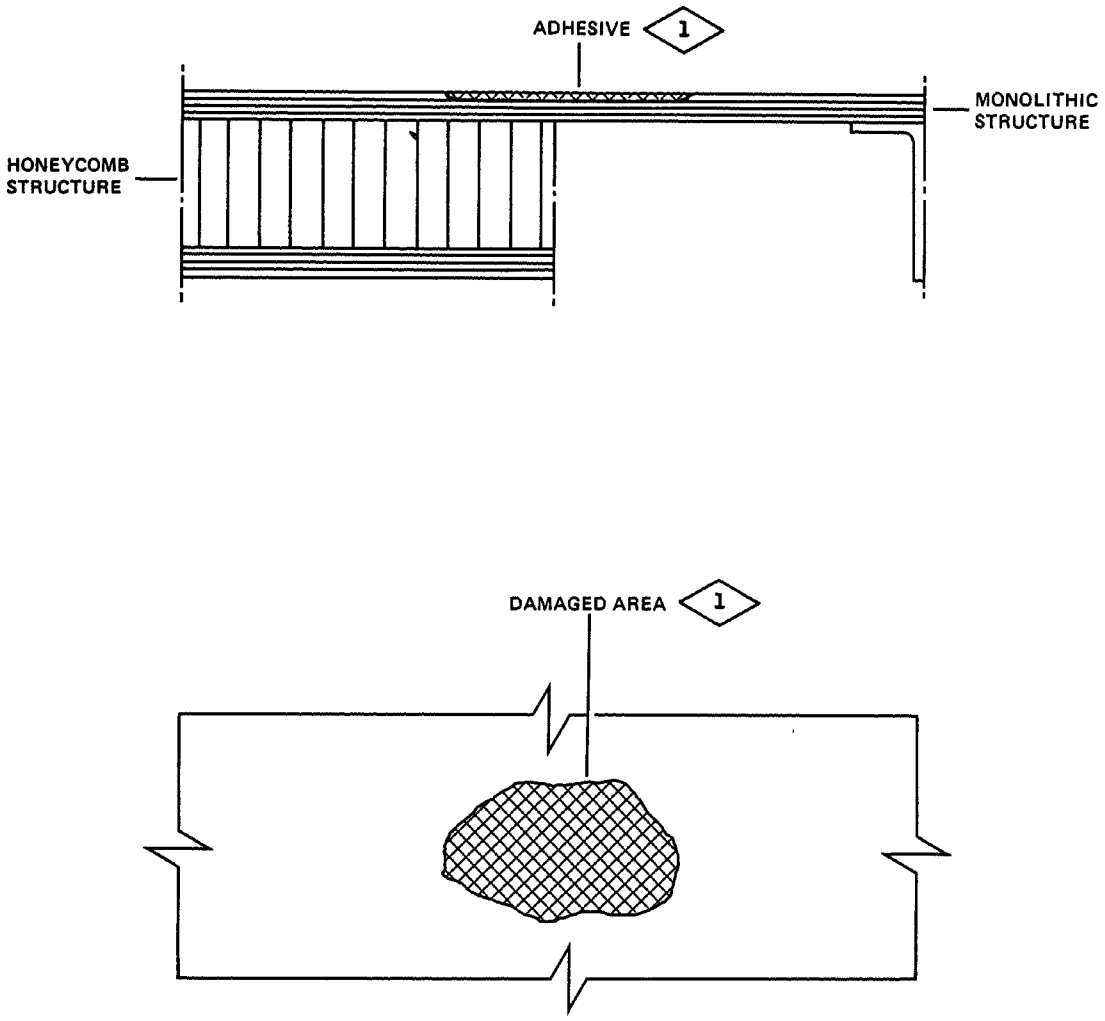
Temporary Repair with High Speed Tape
Figure 801



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Skin Repair one Ply Depth
Figure 802

(b)Remove old adhesive using a nonmetallic scraper and emery cloth.
(3)Degrease damaged area with cleaning agent (Mat. No. 11-004).
(4)Apply adhesive (Mat. No. 08-006) to area to be covered with nonslip surfacing.
(5)Position and press down nonslip surfacing (Mat. No. 05-036).

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove access platform or access steps.

WARNING : APPLY MATERIALS IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS. SOME MATERIALS ARE FLAMMABLE AND/OR TOXIC. AVOID INHALING FUMES. USE IN WELL VENTILATED AREA. OBSERVE FIRE REGULATIONS.
SOME MATERIALS CONTAIN IRRITANTS. WEAR PROTECTIVE GLOVES AND PROTECT EYES. WASH IMMEDIATELY, WITH CLEAN WATER, IF SKIN OR EYES ARE AFFECTED.

1. Reasons for the Job

- Cleaning after sewage spillage
- Cleaning after hydraulic fluid spillage
- Cleaning after shipment of fish
- Cleaning after an acid or alkali leakage
- Cleaning and Inspection after mercury spillage
- Removal of corrosion preventive compound
- Application of Temporary Protection System after Inspection

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform (if required)
B.	Blanking Caps
C.	Brush, Nonmetallic
D.	Circuit Breaker Safety Clips
E.	Clean, Lint-free Cloth
F.	Face Mask
G.	Hot Air Dryer
H.	Nonmetallic Scraper
J.	Protective Gloves
K.	Protective Goggles
L.	Vacuum Cleaner
M.	Bicarbonate of Soda
N.	Potassium Bichromate
P.	Boric Acid
Q.	Sodium Bicarbonate
R.	Sponge
S.	Universal Indicator Paper
T.	Air Compressor
U.	Battery Water Rubber-Syringe
V.	Cardboard
W.	Paper Trough
X.	Cellulose Tape
Y.	Medicine Dropper

	ITEM	DESIGNATION
	Z.	Mercury Sniffer
	AA.	Portable X-Ray Equipment
	AB.	Safety Barriers
	AC.	Cleaning Equipment - High Pressure
	AD. Material No. 05-005	Special Materials (Ref. 20-31-00)
	AE. Material No. 05-027	Special Materials (Ref. 20-31-00)
	AF. Material No. 05-038	Special Materials (Ref. 20-31-00)
	AG. Material No. 09-013	Sealants (Ref. 20-31-00)
	AH. Material No. 11-001	Cleaning Agents (Ref. 20-31-00)
	AJ. Material No. 11-005	Cleaning Agents (Ref. 20-31-00)
R	AK. Material No. 11-026	Cleaning Agents (Ref. 20-31-00)
R	AL. Material No. 11-032	Cleaning Agents (Ref. 20-31-00)
R	AM. Material No. 15-004	Storage Preservation (Ref. 20-31-00)
R	AN. Material No. 15-005	Storage Preservation (Ref. 20-31-00)
R	AP. Material No. 15-005A	Storage Preservation (Ref. 20-31-00)
R	AQ. Material No. 15-006	Storage Preservation (Ref. 20-31-00)
R	AR. Material No. 15-007	Storage Preservation (Ref. 20-31-00)
R	AS. Material No. 15-008	Storage Preservation (Ref. 20-31-00)
R	AT. Material No. 15-009	Storage Preservation (Ref. 20-31-00)
R	AU. Material No. 16-003	Structure Paints (Ref. 20-31-00)
R	AV. Material No. 19-003	Lint-Free Cotton Cloth (Ref. 20-31-00)
	Referenced Procedures	
	- 51-74-10, P. Block 801	Removal of Corrosion
	- 51-75-10, P. Block 801	Repair of Paint Coatings
	- 51-76-10, P. Block 801	Repair of Sealing
	- 53-10-29, P. Block 401	FWD Cargo Compartment Floor Panels
	- 53-10-33, P. Block 401	Aft Cargo Compartment Floor Panels
	- 53-10-35, P. Block 401	Bulk Cargo Compartment Floor Panels
	- MPD	Maintenance Planning Document

3. Procedure

A. Job Set-Up
(1)Put the safety barriers in position.
(2)Put a warning notice in position to tell persons to keep out of the contaminated area/area to be cleaned.
(3)Position access platform (if required).
(4)Open, safety and tag the circuit breakers supplying any electrical components and systems which may come into contact with water and/or cleaning agents.
(5)Remove all components in the area to be cleaned, which could be contaminated or damaged by water and/or cleaning agents. Cap open lines and electrical connectors.

B. Cleaning after Sewage Spillage
(1)Cleaning of contaminated areas

CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL. A METAL SCRAPER CAN CAUSE DAMAGE TO THE SURFACE OF THE COMPONENT.

(a)Remove loose deposits using a nonmetallic scraper, vacuum cleaner or dry brush.
(b)Flush thoroughly with clean water.
(c)Clean with a solution of water and 10% bicarbonate of soda or cleaning agent (Mat. No. 11-001).
(d)Rinse with clean water.
(e)Clean with a solution of:
- water with 5% potassium bichromate and 0.5% cleaning agent (Mat. No. 11-001), or water with 0.5% of the cleaning agents (Mat. No. 11-001).
(f)Clean solution from working area, using clean, lint-free cloth.
(g)Flush thoroughly with clean water.
(h)Dry working area using hot air dryer.
(j)Remove corrosion, if evident (Ref. 51-74-10, P. Block 801).
(k)Repair paint coatings where necessary (Ref. 51-75-10, P. Block 801).
(l)Apply moisture-removing oil (Mat. No. 05-027) thinly to specified areas and apply corrosion-preventive compound (Mat. No. 05-005) to all fasteners in working area (Ref. 51-75-10, P. Block 801).
(m)Remove blanking caps from lines and electrical connectors and install all components previously removed.

C. Cleaning after Hydraulic Fluid Spillage

(1)Cleaning of accessible contaminated areas

CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL. A METAL SCRAPER CAN CAUSE DAMAGE TO THE SURFACE OF THE COMPONENT.

(a)Remove loose deposits using a nonmetallic scraper, vacuum cleaner or dry brush.
(b)Remove hydraulic fluid spillage with dry cloth.
(c)Clean contaminated and surrounding areas with cleaning agent (Mat. No. 11-005) using a clean, lint-free cloth, and wipe dry.
If hydraulic fluid is seeping past rivet heads, thoroughly clean and degrease area of seepage with cleaning agent (Mat. No. 11-005).
(d)Remove corrosion, if evident (Ref. 51-74-10, P. Block 801).
(e)Repair paint coatings where necessary (Ref. 51-75-10, P. Block 801).
(f)Repair fillet seals with sealant (Mat. No. 09-013) where necessary (Ref. 51-76-10, P. Block 801).
(g)Apply lacquer (Mat. No. 16-003) to repaired sealant (Ref. 51-76-10, P. Block 801).
(h)Apply moisture-removing oil (Mat. No. 05-027) thinly to specified areas and apply corrosion-preventive compound (Mat. No. 05-005) to all fasteners in working area. (Ref. 51-75-00, P. Block 801).
(j)Remove blanking caps from lines and electrical connectors and install all components previously removed.

(2)Cleaning of cavities, gaps and around stringers.

CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL. A METAL SCRAPER CAN CAUSE DAMAGE TO THE SURFACE OF THE COMPONENT.

(a)Remove loose deposits using a nonmetallic scraper, vacuum cleaner or dry brush.
(b)Using compressed air, carefully blow hydraulic fluid out of cavities.
(c)Remove hydraulic fluid spillage with dry cloth.
(d)Clean contaminated and surrounding areas with cleaning agent (Mat. No. 11-001) using a clean, lint-free cloth, and wipe dry.
(e)Apply Met-l-check developer (Mat. No. 05-038) to cavities. When Met-l-check developer (Mat. No. 05-038) turns white, allow to work for 30 min.

NOTE : If hydraulic fluid is present Met-l-check developer (Mat. No. 05-038) will appear wet.

(f)Clean area with dry, clean lint-free cloth.
(g)Repeat steps (e) and (f) until developer remains dry after application.
(h)Clean area with cleaning agent (Mat. No. 11-001) using a clean, lint-free cloth, and wipe dry.
(j)Remove corrosion, if evident (Ref. 51-74-10, P. Block 801).
(k)Repair paint coatings where necessary (Ref. 51-75-10, P. Block 801).
(l)Repair fillet seals with sealant (Mat. No. 09-013) where necessary

(Ref. 51-76-10, P. Block 801).

(m)Apply lacquer (Mat. No. 16-003) to repaired sealant (Ref. 51-76-10, P. Block 801.

(n)Apply moisture-removing oil (Mat. No. 05-027) thinly to previously treated areas and apply corrosion-preventive compound (Mat. No. 05-005) to all fasteners in working area (Ref. 51-75-10, P. Block 801).

(p)Remove blanking caps from lines and electrical connectors and install all components previously removed.

D. Cleaning after Shipment of Fish
(1)Cleaning of contaminated area.

CAUTION : DO NOT USE A METAL SCRAPER TO REMOVE THE UNWANTED MATERIAL. A METAL SCRAPER CAN CAUSE DAMAGE TO THE SURFACE OF THE COMPONENT.

(a)Remove loose deposits using a nonmetallic scraper, vacuum cleaner or dry brush.
(b)Clean contaminated and surrounding areas with cleaning agent (Mat. No. 11-001).
(c)Rinse with clean water.
(d)Clean with a solution of:
- water with 5% potassium bichromate and 0.5% cleaning agent (Mat. No. 11-001), or water with 0.5% of the cleaning agents (Mat. No. 11-001).

(e)Clean solution from working area, using clean, lint-free cloth.
(f)Flush thoroughly with clean water.

NOTE : Steps (b) thru (f) must be carried out at temperatures above freezing point.

(g)Dry with hot air drier.
(h)Remove corrosion, if evident (Ref. 51-74-10, P. Block 801).
(j)Repair fillet seals with sealant (Mat. No. 09-013), if necessary (Ref. 51-76-10, P. Block 801).
(k)Apply lacquer (Mat. No. 16-003) to repaired sealant (Ref. 51-76-10, P. Block 801).
(l)Repair paint coatings, if necessary (Ref. 51-75-10, P. Block 801).
(m)Apply moisture-removing oil (Mat. No. 05-027) thinly to specified areas and apply corrosion-preventive compound (Mat. No. 05-005) to all fasteners in working area (Ref. 51-75-10, P. Block 801).
(n)Remove blanking caps from lines and electrical connectors and install all components previously removed.

E. Cleaning after an Acid or Alkali Leakage
(1)Cleaning of contaminated area.
(a)Soak up the contamination with a lint-free cloth or a sponge.
(b)In areas that you cannot dry with a cloth, use powder (Mat. No. 05-038).
(c)Prepare the necessary solution:
1 For alkali leakage, mix a solution of 5% boric acid and water. Mix 50 g (1.76 oz) of boric acid with 1 l (0.2641 USgal) of water to get the necessary solution.
2 For acid leakage, mix a solution of 5% sodium bicarbonate and water. Mix 50 g (1.76 oz) of sodium bicarbonate with 1 l (0.2641 USgal) of water to get the necessary solution.
(d)Apply the solution to the dirty area with a nonmetallic brush and/or lint-free cloth.
(e)Apply the solution until the chemical reaction stops. Keep the solution on the surface for 5 min.

(f)Remove the neutralized mixture with a cloth and/or a sponge.
(g)Flush the area with clean water.
(h)Use a soft brush to remove the clean water.
(j)Do a test to measure the pH-value of the leakage area.
(k)Use universal indicator paper to do the test.
(l)Make sure that the pH-value is not more than 7 and not less than 5.5.
(m)You must do a test on areas where it is not easy to get access.
(n)If the pH-value is not correct, clean the area again.
(p)Dry the area with a hot air dryer.
(q)Remove corrosion if evident (Ref. 51-74-10, P. Block 801).
(r)Repair fillet seals with sealant (Mat. No. 09-013) if necessary (Ref. 51-76-10, P. Block 801).
(s)Apply lacquer (Mat. No. 16-003) to repaired sealant (Ref. 51-76-10, P. Block 801).
(t)Repair paint coatings if necessary (Ref. 51-75-10, P. Block 801).
(u)Apply moisture-removing oil (Mat. No. 05-027) thinly to specified areas and apply corrosion-preventive compound (Mat. No. 05-005) to all fasteners in working area (Ref. 51-75-10, P. Block 801).
(v)Remove blanking caps from lines and electrical connectors and install all components previously removed.

F. Cleaning and Inspection after Mercury Spillage

WARNING : ALWAYS SUPPLY SUFFICIENT VENTILATION WHILE YOU CLEAN AREAS WHERE THERE IS MERCURY CONTAMINATION. MERCURY VAPORS ARE TOXIC.

WARNING : DO NOT TRY TO COLLECT MERCURY BY HAND.

WARNING : DO NOT BREATHE MERCURY VAPORS. THE AIR FROM THE VACUUM CLEANER CONTAINS MERCURY VAPORS COLLECTED DURING CONTACT WITH THE MERCURY DEPOSITED IN THE GLASS CONTAINER.

WARNING : WEAR PROTECTIVE CLOTHING, FACE MASK AND PROTECT EYES.

WARNING : DO NOT USE THE AIR HOSE TO REMOVE MERCURY FROM THE AIRCRAFT.

NOTE : You must do the inspection when mercury is spilled in the cargo compartment. Mercury and mercury compounds are heavily corrosive on a wide range of metallic materials, especially on aluminum alloys. When mercury is spilled in the aircraft, there is a high risk of serious damage to the structure. Corrosion caused by spilled mercury can destroy a large area, although only a small amount of mercury is spilled. Heavy destruction can occur within a few hours.

(1)Cleaning of contamined area
(a)Ventilate the cargo compartment with clean filtered air from an air compressor.
(b)Mark the area that is contaminated by mercury spillage.
(c)Isolate the contaminated area, do not let mercury spread from the contaminated areas to the clean areas. Do not walk through or move

parts from the contaminated area into the clean areas of the aircraft.

(d)Do not touch the surfaces that you suspect have contamination.

CAUTION : DO NOT USE CONTAMINATED PROTECTIVE CLOTHING IN CLEAN AREAS.

(e)Remove mercury spillage as follows:

1 Collect all the visible mercury with a cardboard or a paper trough.

2 To collect small particles of mercury, use cellulose tape.

3 If there is a larger quantity, collect the mercury with a medicine dropper or a battery water rubber-syringe.

4 To check under-floor zones, use a mercury sniffer and portable X-ray equipment.

(2)Inspection of the cargo compartment.

CAUTION : WHEN YOU FIND MERCURY ON THE FLOOR, DO NOT REMOVE ACCESS/ INSPECTION PLATES, SCREWS, RIVETS, BOLTS ETC., FROM THE FLOOR. A HOLE IN THE CONTAMINED AREA OF THE FLOOR MAY LET THE MERCURY SPREAD TO THE STRUCTURE BELOW THE FLOOR.

(a)Do a visual inspection of the cargo compartment floor, the components of the cargo loading system and the lowest point of the structure.

1 Remove the mercury.

(b)Do an inspection of the non-visible contamined areas with a mercury sniffer.

1 Remove the mercury.

(c)Remove the floor panels in the contaminated areas:

1 FWD cargo compartment floor (Ref. 53-10-29, P. Block 401).

2 Aft cargo compartment floor (Ref. 53-10-33, P. Block 401).

3 Bulk cargo compartment floor (Ref. 53-10-35, P. Block 401).

(d)Do a visual inspection of the bottom of the fuselage:

1 Do an inspection of the skin and the internal structure below the point of spillage.

2 If mercury spillage has occurred in the cargo area, do an inspection of the lowest point of the fuselage below the cargo compartment floor.

3 Remove the mercury.

(e)Do an inspection with a mercury sniffer or portable X-ray equipment of the non-visible contaminated areas between the skin, stringer and frames below the floor.

NOTE : Droplets of mercury are shown as small white spots on the X-ray equipment.

1 Remove the mercury.

(f)Use the portable X-ray equipment to examine the hidden corrosion areas between the skin, stringers and frames below the floor.

(g)Do a visual inspection of all removable components for contamination.

(h)Remove corrosion if evident (Ref. 51-74-10, P. Block 801).

(j)Repair fillet seals with sealant (Mat. No. 09-013) if necessary (Ref. 51-76-10, P. Block 801).

(k)Apply lacquer (Mat. No. 16-003) to repaired sealant (Ref. 51-76-10,

P. Block 801).
(l)Repair paint coatings if necessary (Ref. 51-75-10, P. Block 801).
(m)Apply moisture-removing oil (Mat. No. 05-027) thinly to specified areas and apply corrosion-preventive compound (Mat. No. 05-005) to all fasteners in working area (Ref. 51-75-10, P. Block 801).
(n)Remove blanking caps from lines and electrical connectors and install all components previously removed.
(p)Install floor panels:
1 FWD cargo compartment floor (Ref. 53-10-29, P. Block 401).
2 Aft cargo compartment floor (Ref. 53-10-33, P. Block 401).
3 Bulk cargo compartment floor (Ref. 53-10-35, P. Block 401).
(q)Clean all the tools used in the contaminated areas with steam or hot water and soap.
(r)Discard twist drills and other cutting tools used on the contaminated structure.
(s)Thoroughly clean all the protective clothing with water and soap after use in the contaminated areas.
(t)Thoroughly wash your hands with water and soap before you touch your face.

G. Removal of Corrosion Preventive Compound
(1)Removal of Corrosion Preventive Compound

NOTE : This is an alternative method to solvent cleaning for the removal of corrosion preventive compounds, Material Nos. 15-004, 15-005, 15-006, 15-007, 15-008 and 15-009 from large areas.

CAUTION : DO NOT APPLY THE CLEANING AGENTS TO THESE PARTS:
- BEARINGS, ACTUATORS, FITTINGS
- ACRYLICS OR POLYCARBONATE MATERIALS
- ELECTRICAL HARNESSES, SENSORS, CONNECTORS.
CLEANING AGENT ON OR IN THESE PARTS CAN CAUSE DAMAGE.

CAUTION : DO NOT POINT THE SPRAY GUN OF THE HIGH PRESSURE WATER CLEANER AT ELECTRICAL COMPONENTS, HARNESSES, SENSORS, CONNECTORS, EQUIPMENT AND ACTUATOR BEARINGS.
WATER CAN CAUSE DAMAGE TO THESE COMPONENTS.

(a)Get access to the area(s) where you will do the work.
(b)Apply a thin layer of the cleaning agent (Mat. No. 11-032) to the area.

NOTE : Refer to the manufacture's instructions.

(c)Let the cleaning agent (Mat. No. 11-032) soak into the corrosion preventive compound for a minimum of 20 minutes.
(d)Flush the area with water with a maximum temperature of 50 deg.C (122.00 deg.F). Use a high pressure water cleaner to do this as follows:

CAUTION : DO NOT APPLY MORE THAN 80 BAR (1160 PSI) WATER PRESSURE TO THE STRUCTURE.

DO NOT APPLY MORE THAN 2 BAR (30 PSI) WATER PRESSURE TO THE COMPOSITE MATERIALS.

1 Hold the spray gun of the high pressure water cleaner with an angle of 30 to 45 degrees to the surface.
2 Make sure that the distance between the nozzle of the high pressure water cleaner and the surface is more than 250 mm (9.8425 in.).

(e)Dry the area with a hot air dryer operating at 40 deg.C (104 deg.F).
(f)Remove corrosion if evident (Ref. 51-74-10, P. Block 801).
(g)Repair fillet seals with sealant (Mat. No. 09-013) if necessary (Ref. 51-76-10, P. Block 801).
(h)Apply lacquer (Mat. No. 16-003) to repaired sealant (Ref. 51-76-10, P. Block 801).
(j)Repair paint coatings if necessary (Ref. 51-75-10, P. Block 801).
(k)Apply the new corrosion preventive compound as necessary (Ref. 51-75-10, P. Block 801).
(l)Remove blanking caps from lines and electrical connectors and install all components previously removed.
(m)Make sure that the working area is clean and clear of tools and miscellaneous items of equipment.
(n)Close access.

H. Application of the Temporary Protection System (TPS) after Inspection

WARNING : USE SOLVENTS/CLEANING AGENTS, SEALANTS AND OTHER SPECIAL MATERIALS ONLY WITH A GOOD SUPPLY OF AIR.
DO NOT GET THEM IN YOUR MOUTH.
DO NOT SMOKE.
DO NOT BREATHE THE GAS.
THESE MATERIALS ARE POISONOUS, FLAMMABLE AND SKIN IRRITANT.
GET MEDICAL HELP IF YOUR SKIN OR EYES BECOME IRRITATED.

NOTE : TPS application is necessary:
- if TPS has been removed
- if cleaning of an area with TPS has been done
- if TPS appears locally damaged
- if TPS is quoted in the MPD Structure Programm task description column
- if TPS appears in a good visual condition. In this case, an overspray of fresh TPS on the top of the original layer is recommended.

(1)Get access to the area(s) where you will do the work.

(Ref. Fig. 701)

(a)Inspect the area where the TPS is applied.
1 If the TPS is in the correct condition, a secondary layer

of the same TPS can be applied over the first layer.
2 If the TPS is not in the correct condition, remove the TPS, clean the area and apply a new layer of the correct TPS type.
3 If the TPS has been removed for an inspection, apply a new layer of the TPS to the inspection area.

(2)Cleaning and/or removal of the TPS

CAUTION : DO NOT APPLY THE CLEANING AGENTS TO THESE PARTS:
- BEARINGS, ACTUATORS, FITTINGS
- ACRYLICS OR POLYCARBONATE MATERIALS
- ELECTRICAL HARNESSES, SENSORS, CONNECTORS.
CLEANING AGENT ON OR IN THESE PARTS CAN CAUSE DAMAGE.

(a)Check in the MPD task the neccessity of the removal of TPS:
1 If the TPS does not need to be removed, clean the inspection area with the Material No 11026 (CLEANING AGENTS (Material No. 11-026)) and a clean lint-free cloth Material No 19003 (MISCELLANEOUS (Material No. 19-003)).
2 If the TPS has to be removed, use a nonmetallic scraper to remove the TPS application. Only remove sufficient TPS to allow for the inspection procedure. Clean the area with the Material No 11026 (CLEANING AGENTS (Material No. 11-026)) and a clean lint-free cloth Material No 19003 (MISCELLANEOUS (Material No. 19-003)).

(3)Removal of the TPS

NOTE : Refer to the manufacture's instructions.

(a)Let the cleaning agent (Mat. No. 11-032) soak into the TPS for a minimum of 20 minutes.
(b)Clean the area with a lint-free cloth Material No 19003 (MISCELLANEOUS (Material No. 19-003)) and wipe dry.

(4)Application of the TPS

CAUTION : DO NOT APPLY TPS ON:
- OXYGEN SYSTEMS
- CONTROL CABLES AND PULLEYS
- TEFLON BEARINGS
- LUBRICATED SURFACES
- INSULATION BLANKETS
TPS ON OR IN THESE PARTS CAN CAUSE DAMAGE.

CAUTION : FOR MOVABLE PARTS ONLY, MAT. 15-005 IS PERMITTED.

(a)Protect drain valves and all open orifices before TPS application.
(b)Apply a thin layer of TPS compound to the areas where it was previously removed and which must be protected (Ref. MPD Structure Program) by spraying or with a brush.
- Type I Grade 2 (Mat. 15-005) or Grade 3 (Mat. 15-006).
- Type II (Mat. 15-007 or 15-008).
- Type I (Mat. 15-005 or 15-006) plus Type II (Mat. 15-007 or 15-008).

NOTE : As an alternative to Type I (Mat. 15-005 or 15-006) plus Type II (Mat. 15-007 or 15-008), apply Type III (Mat. 15-009) to the inspection area.

- Type III (Mat. 15-009).

NOTE : As an alternative to Type III (Mat. 15-009), apply Type I (Mat. 15-005 or 15-006) and Type II (Mat. 15-007 or 15-008)) to the inspection area.

NOTE : Material No 15009 (STORAGE PRESERVATION (Material No. 15-009)) must not be used on mechanisms, for instance inside doors. Mechanisms are treated with Material No 15005A (STORAGE PRESERVATION (Material No. 15-005A)) only if necessary.

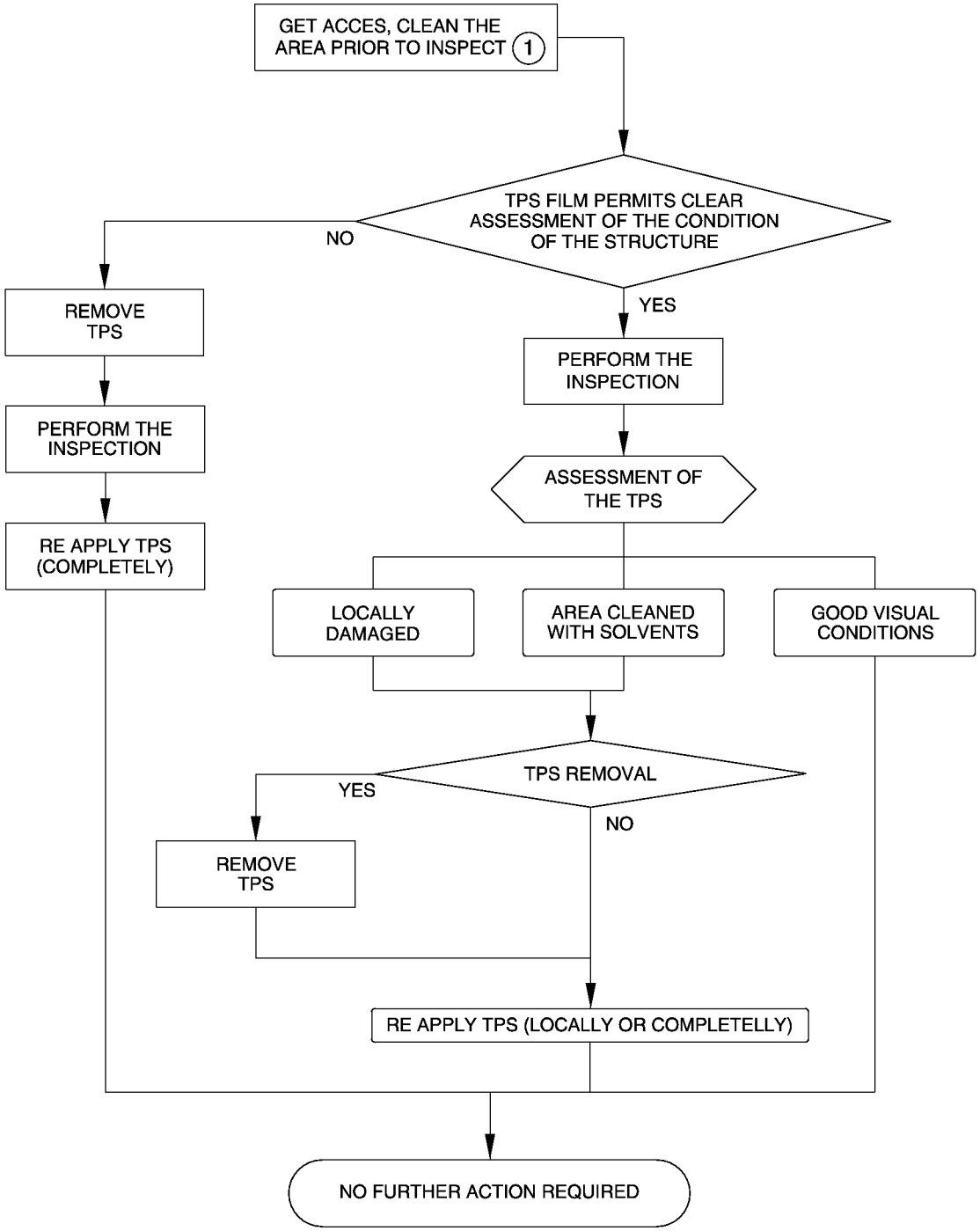
(c)Make sure that the TPS is not applied to the insulating blankets/material.

NOTE : Refer to the manufacture's instructions.

(d)Make sure that the film of the TPS is continuous, smooth and free from any damage.
(e)Remove all protections from drain valves and open orifices as previously installed.
(f)Make sure that the working area is clean and clear of tools and miscellaneous items of equipment.
(g)Close access.

J. Test
(1)Carry out a functional test of all components and systems that were removed and subsequently installed.

K. Close-Up
(1)Make sure that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove safety clips and tags and close all associated system circuit breakers.
(3)Remove access platform (if used).
(4)Remove the warning notice.
(5)Remove the safety barriers.



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NOTE:

(1) THE AREA/ITEM TO BE INSPECTED SHOULD BE IN A STATE OF CLEANLINESS THAT ALLOWS A SATISFACTORY INSPECTION TO BE CARRIED OUT AT THE REQUIRED AREA

TPS Re-Application Flow Chart
Figure 701

1. General

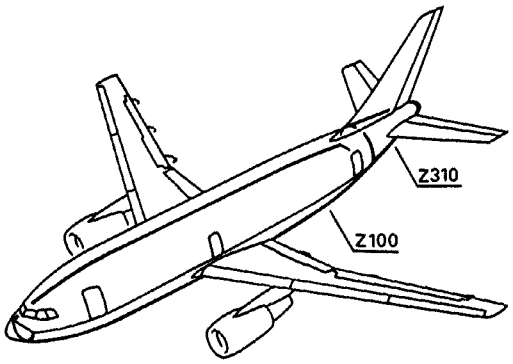
A. The structure of the aircraft frame is designed to allow condensate and other liquids to run to the lower points of the fuselage, where drain valves and drain tubes enable the liquids to drain overboard.

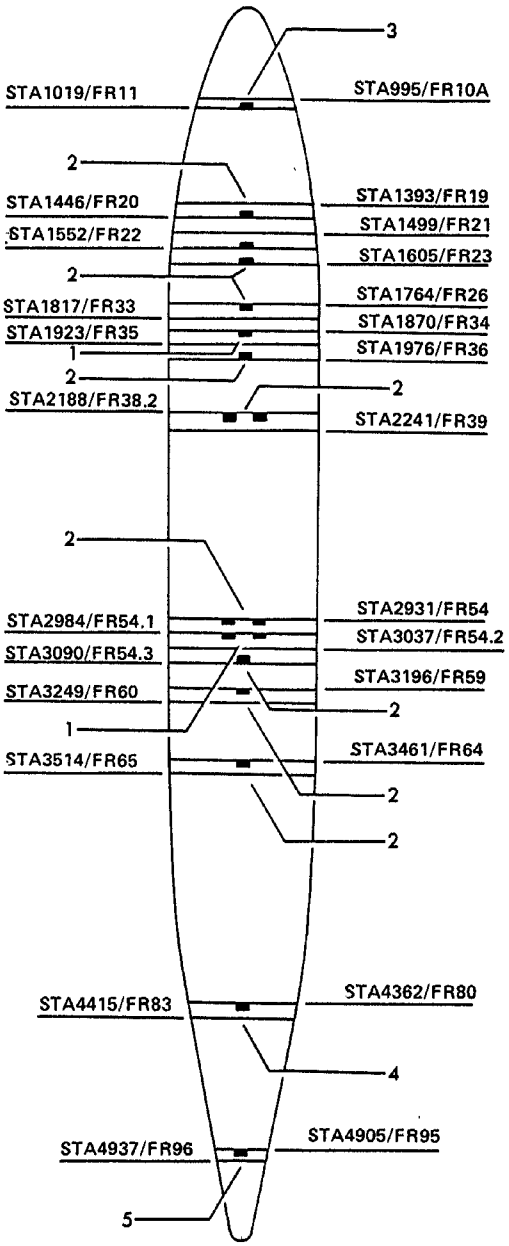
2. Component Location

(Ref. Fig. 001)
(Ref. Fig. 002)
(Ref. Fig. 003)
(Ref. Fig. 004)
(Ref. Fig. 005)

	FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
		PLUG-DRAIN		135	811	51-80-21
		STA1870(FR34)-STA1923(FR35)		136		
		PLUGS-DRAIN		153	812	51-80-41
		STA2984(FR54.1)-STA3037(FR54.2)		154		
		VALVE-DRAIN		121	121BL	51-80-11
		STA995(FR10A)-STA1019(FR11)		122		
		VALVE-DRAIN		121	121BL	51-80-21
		STA1393(FR19)-STA1446(FR20)		122		
		VALVE-DRAIN		121	811	51-80-21
		STA1499(FR21)-STA1552(FR22)		122		
		VALVE-DRAIN		135	811	51-80-21
		STA1764(FR26)-STA1817(FR33)		136		
		VALVE-DRAIN		135	811	51-80-21
		STA1923(FR35)-STA1976(FR36)		136		
		VALVE-DRAIN		135	811	51-80-21
		STA2188(FR38.2)-STA2241(FR39)		136		
		VALVES-DRAIN		153	812	51-80-41
		STA2931(FR54)-STA2984(FR54.1)		154		
		VALVES-DRAIN		153	812	51-80-41
		STA3037(FR54.2)-STA3090(FR54.3)		154		
		VALVE-DRAIN		153	812	51-80-41
		STA3196(FR59)-STA3249(FR60)		154		
		VALVE-DRAIN		163	813	51-80-41
		STA3461(FR64)-STA3514(FR65)		164		
R		VALVE-DRAIN		811	130	52-30-00
R		FWD CARGO DOOR				52-31-11
R		VALVE-DRAIN		812	150	52-30-00
R		AFT CARGO DOOR				52-32-11
		TRAY-COLLECTOR, WINDSHIELD		211	831	51-80-11
		(UPPER)		212		
		TRAY-COLLECTOR, WINDSHIELD		211	831	51-80-11
		(LOWER)		212		
		TRAY-COLLECTOR, SIDE WINDOW		211	831	51-80-11

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	(UPPER)		212		
	TRAY-COLLECTOR, SIDE WINDOW		211	831	51-80-11
	(LOWER)		212		
	TUBES-DRAIN, FWD PASSENGER/		120	831	51-80-21
	CREW DOOR		220	841	
	TUBES-DRAIN, AFT PASSENGER/		170	833	51-80-41
	CREW DOOR		260	843	
	TUBES-DRAIN, EMERGENCY EXIT		140	834	51-80-31
			240	844	
	TUBE-DRAIN, BULK CARGO		161	813	51-80-41
	COMPARTMENT		162		
	TUBE-DRAIN		311	312AR	51-80-41
	STA4362(FR80)-STA4415(FR83)		312		
	TUBE-DRAIN, APU ACCESS DOOR		315	315AL	51-80-41
	CAN-TRACK NO. 1		540	512DB	51-80-51
	STA67(RIB2)-STA139(RIB3)		640	612DB	
	CAN-JACK NO. 1		540	512CB	51-80-51
	STA67(RIB2)-STA139(RIB3)		640	612CB	
	CAN-TRACK NO. 2		540	512FB	51-80-51
	STA207(RIB4)-STA270(RIB5)		640	612FB	
	CAN-TRACK NO. 3		540	512JB	51-80-51
	STA339(RIB6)-STA409(RIB7)		640	612JB	
	CAN-JACK NO. 2		540	512HB	51-80-51
	STA339(RIB6)-STA409(RIB7)		640	612HB	
	CAN-TRACK NO. 4		540	523CB	51-80-51
	STA513(RIB9)-STA590(RIB10)		640	623CB	
	CAN-JACK NO. 3		540	523DB	51-80-51
	STA590(RIB10)-STA633(RIB11)		640	623DB	
	CAN-TRACK NO. 5		540	523FB	51-80-51
	STA737(RIB12)-STA813(RIB13)		640	623FB	
	CAN-TRACK NO. 6		550	523GB	51-80-51
	STA874(RIB14)-STA935(RIB 15)		650	623GB	
	CAN-JACK NO. 4		550	523KB	51-80-51
	STA996(RIB16)-STA1057(RIB17)		650	623KB	
	CAN-TRACK NO. 7		550	523LB	51-80-51
	STA1057(RIB17)-STA1119(RIB 18)		650	623LB	
	CAN-TRACK NO. 8		550	524CB	51-80-51
	STA1246(RIB20)-STA1311(RIB 21)		650	624CB	
	CAN-JACK NO. 5		550	524DB	51-80-51
	STA1311(RIB21)-STA1372(RIB22)		650	624DB	
	CAN-TRACK NO. 9		550	524FB	51-80-51
	STA1434(RIB23)-STA1495(RIB24)		650	624FB	
	CAN-TRACK NO. 10		550	524HB	51-80-51
	STA1604(RIB26)-STA1659(RIB27)		650	624HB	
	CAN-JACK NO. 6		550	524JB	51-80-51
	STA1659(RIB27)-STA1713(RIB28)		650	624JB	
	CAN-TRACK NO. 11		550	524KB	51-80-51
	STA1787(RIB29)-STA1835(RIB30)		650	624KB	





1 DRAIN PLUG
2 DRAIN VALVE
3 DRAIN VALVE
4 DRAIN TUBE
5 APU ACCESS DOOR DRAIN TUBE

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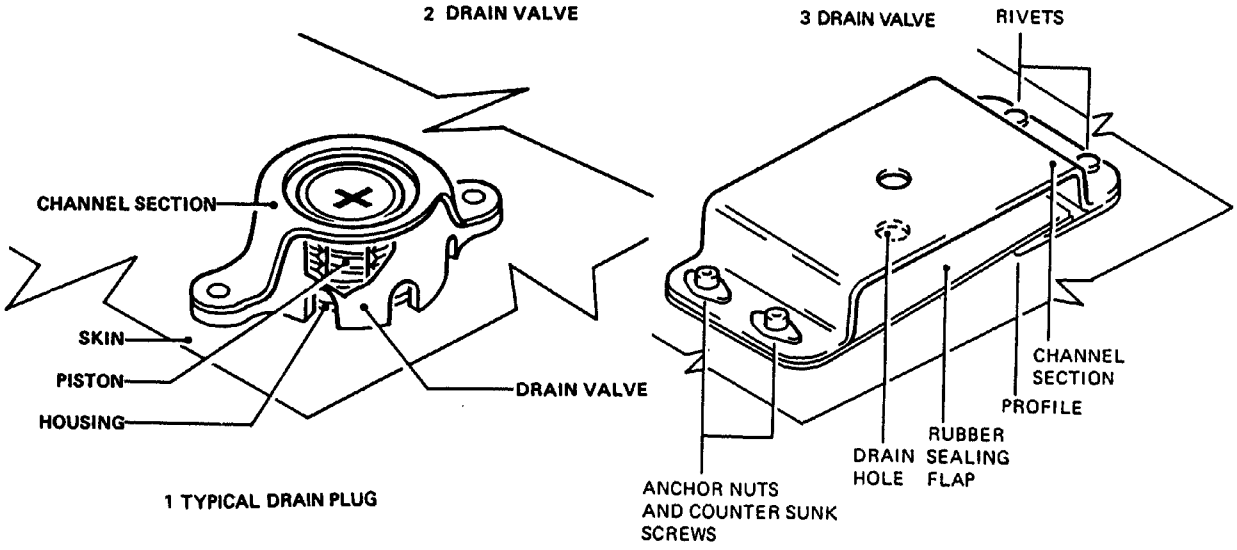
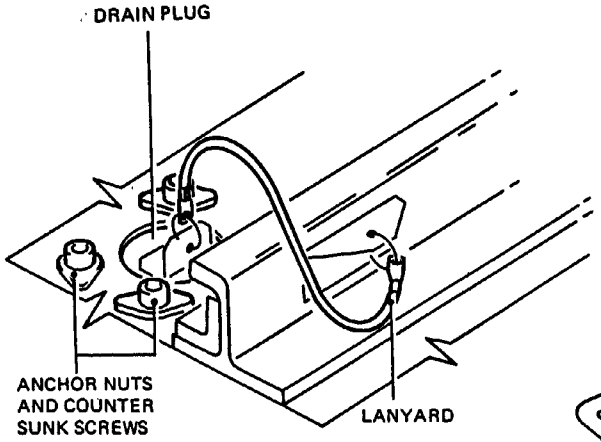
Airframe Drainage
Figure 001





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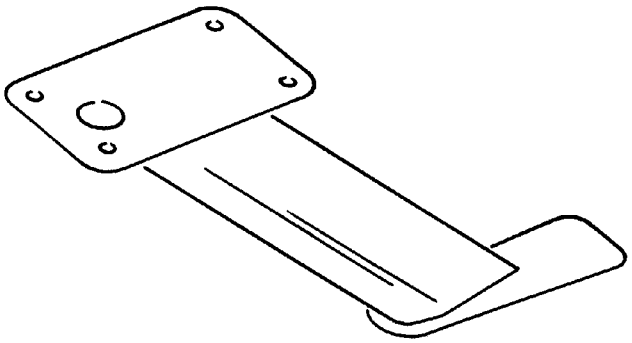

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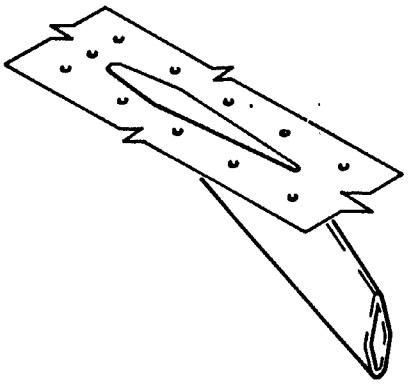

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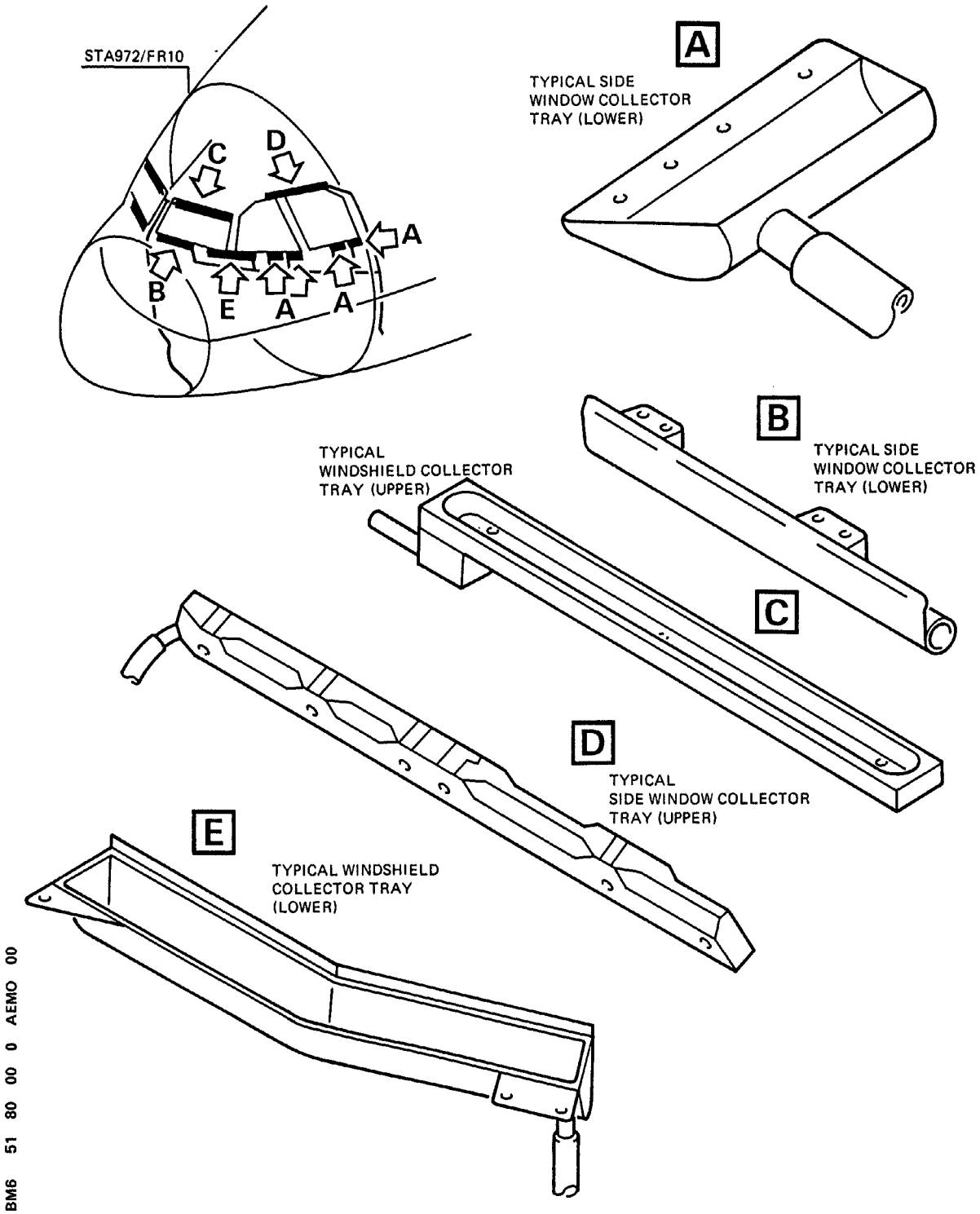
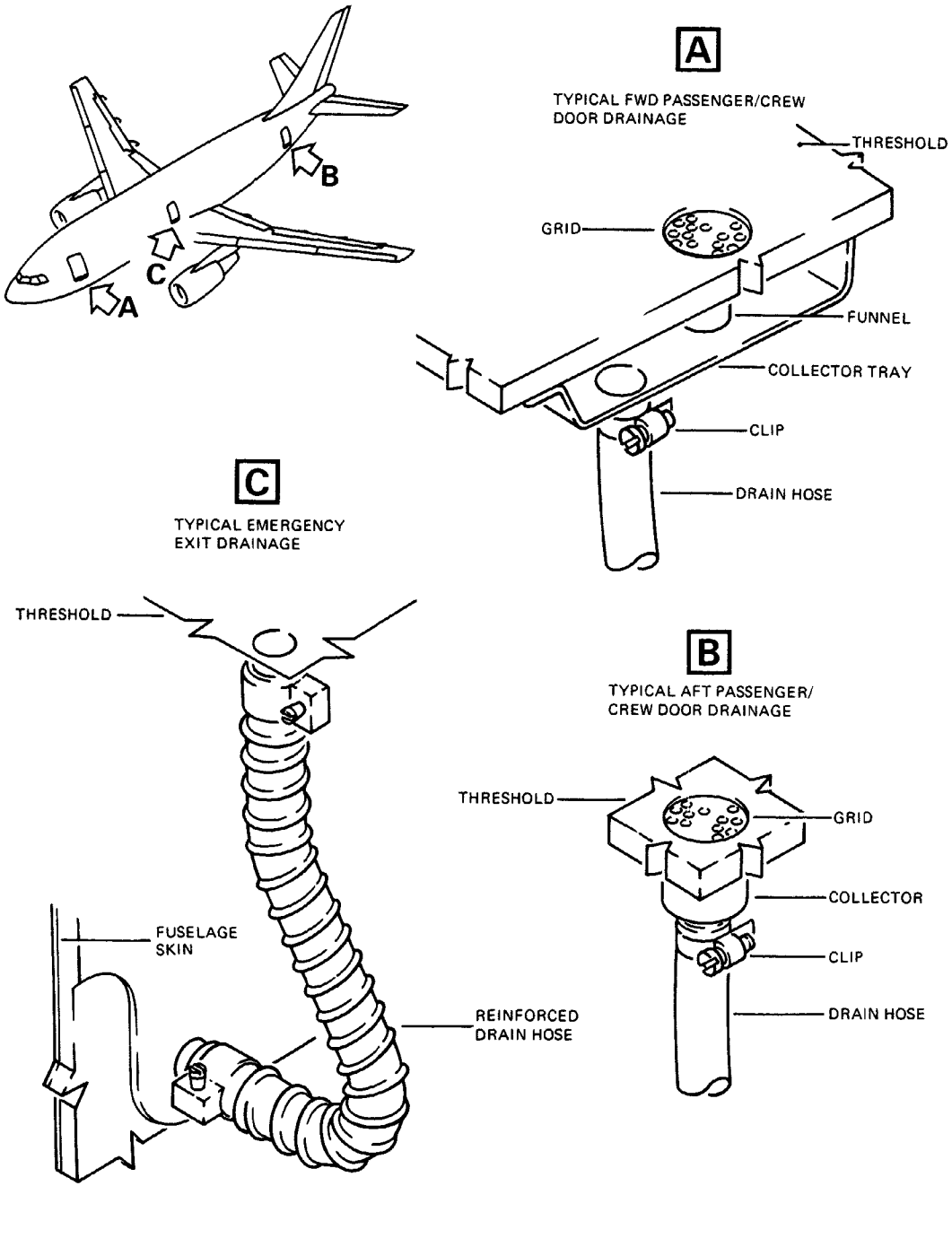
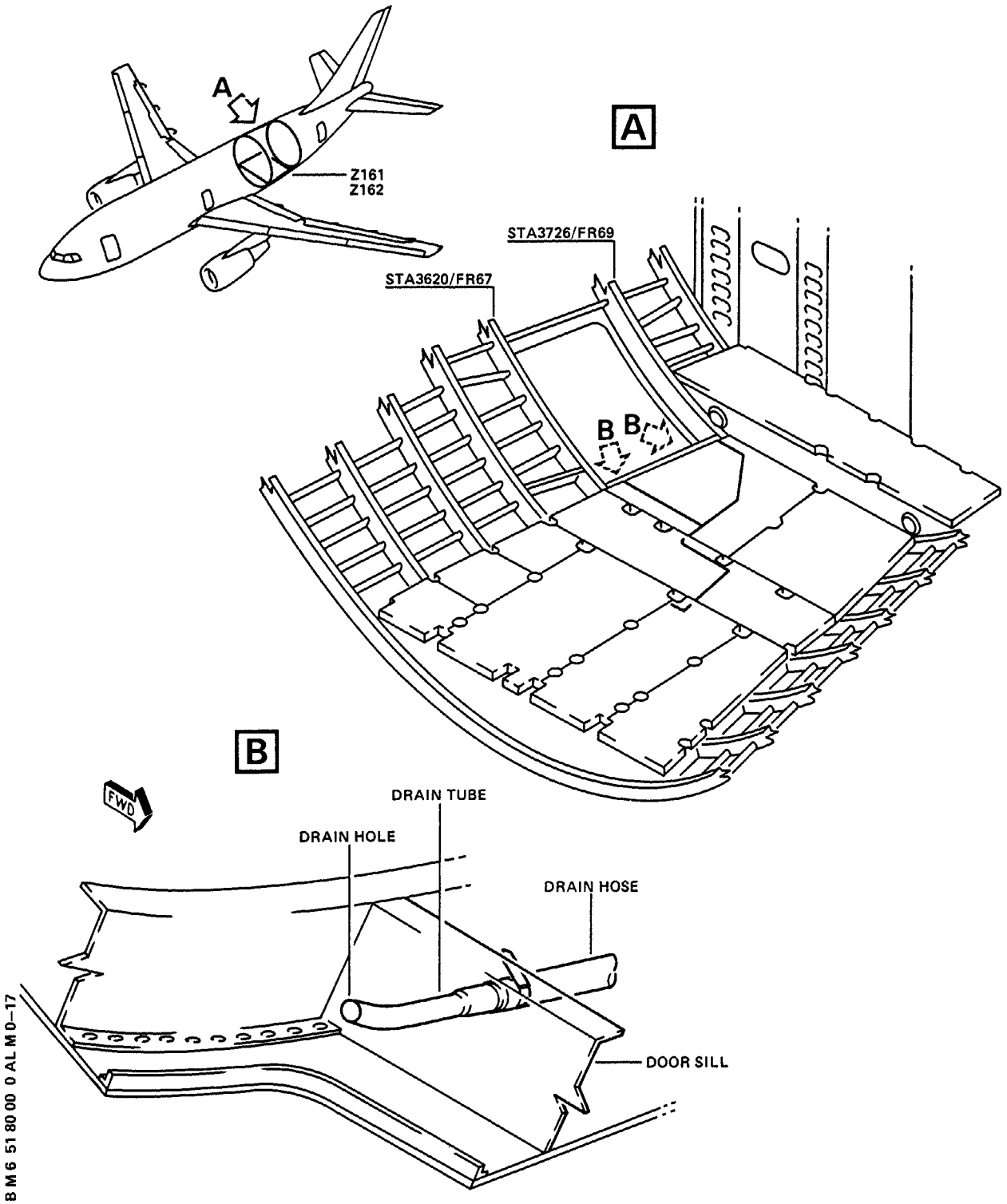
Airframe Drainage
Figure 002



Flight Compartment Window Drainage
Figure 003



Passenger/Crew Door and Emergency Exit Drainage
Figure 004



Bulk Cargo Compartment Drainage
Figure 005

3. Description and Operation

A. General

(1)The internal structure of the fuselage consists of horizontal and vertical members. By utilizing drilled holes and channels manufactured from sealant, the build-up of condensate and other liquids is prevented. In areas where natural drainage is difficult, liquids are guided by collector trays and drain hoses. The residual liquid flows towards the lower points of the fuselage and out of the aircraft, via drain valves and drain tubes.

B. Pressurized Area Drainage

(Ref. Fig. 001, 002)

(1)Drain Plugs

(a)Drain plugs(1) are located at the lowest points of the fuselage and are secured in position with threaded fasteners from outside of the aircraft. A lanyard, attached to the drain plug and fuselage structure, prevents loss during drainage.

(b)The drain plugs are used for rapid drainage at the fuselage.

(2)Drain Valves

(a)The drain valves (2) comprise a piston with spring installed in a housing. The valves are located in the pressurized area of the lower fuselage.

(b)The drain valve (3) comprises a flap assembly protected by a channel section. The valve is located over a 10 mm (0.39 in.) dia. hole in the fuselage skin between STA995 (FR10A) and STA1019 (FR11).

(c)The drain valves are controlled by fuselage pressurization. At ground level both types of valves are open to allow condensate to drain overboard. During flight the drain valves in pressurized zones are closed.

(3)Flight Compartment Window Drainage (Ref. Fig. 003)

(a)Collector trays positioned above the windows prevent condensate running onto the windows.

(b)To prevent the ingress of condensate and other liquids into the flight compartment, collector trays are installed below the windows.

(c)Drain hoses, connected to the collector trays guide any condensate or other liquids to the lower points of the fuselage.

(4)Passenger/Crew Door Threshold Drainage (Ref. Fig. 004)

(a)Condensate and other liquids, at the passenger/crew doors, are guided to funnels, installed in the floor panels at the threshold, adjacent to the girt bar fittings.

(b)Collectors, or collector trays, with drain hoses attached, are installed immediately below the funnels to drain the liquids away from the passenger compartment to the lower points of the fuselage.

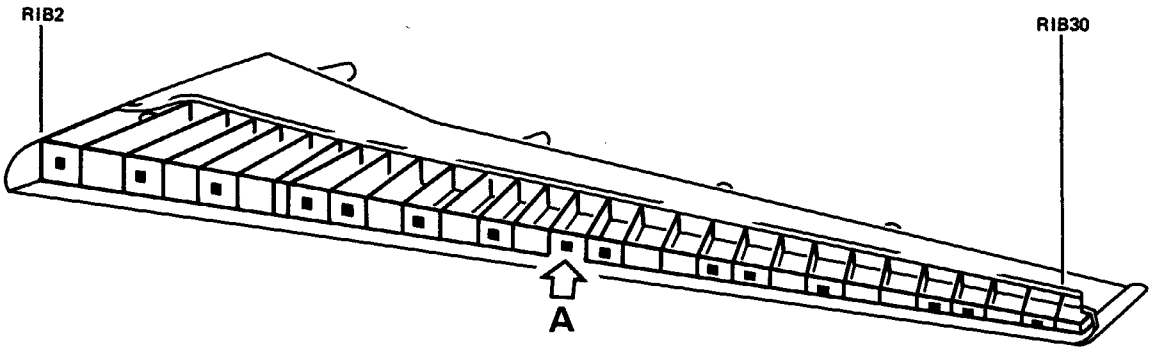
(c)Grids, installed in the funnels, prevent the drain hoses from becoming blocked.

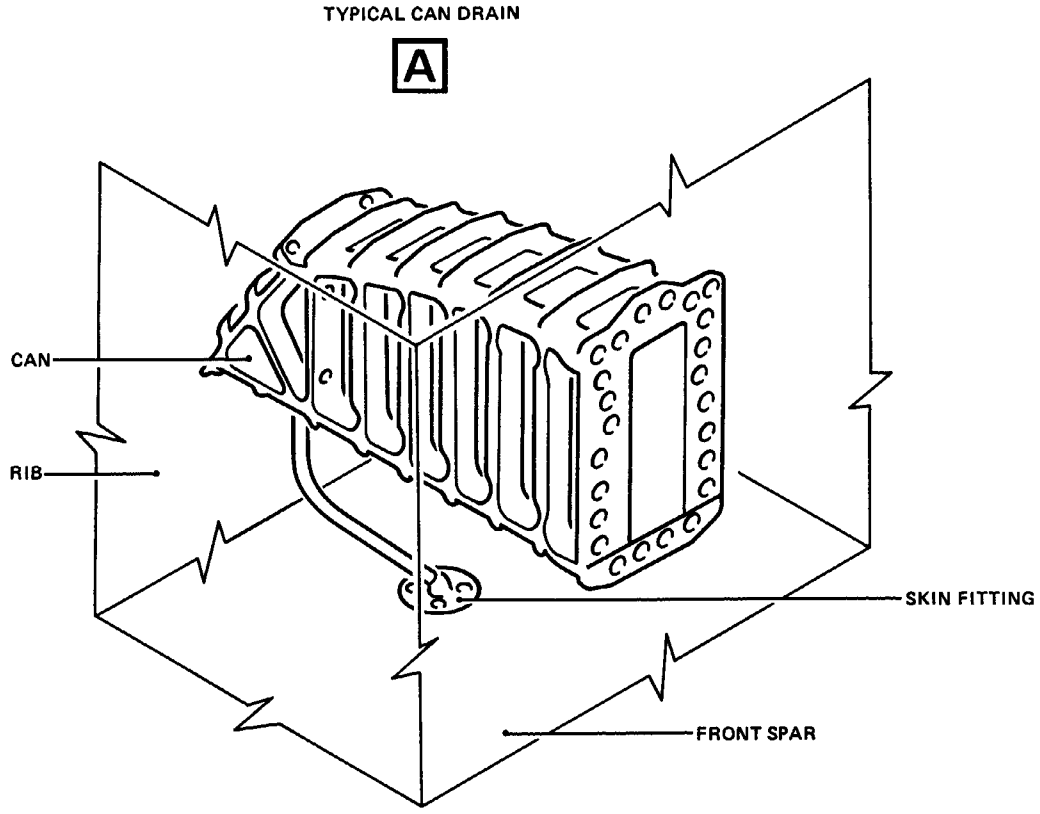
(5)Emergency Exit Threshold Drainage (Ref. Fig. 004)

(a)At the emergency exits, condensate and other liquids are directed into reinforced drain hoses, which drain the liquids overboard. The reinforced drain hoses are located below the floor in the pressurized area and are vented to atmosphere below the emergency exits.

(6)Not applicable
(7)BULK Cargo Compartment Drainage (Ref. Fig. 005)
(a)Drain tubes are installed at BULK cargo door sill to guide condensate and other liquids via drain hoses to the lower points of the fuselage.

C. Non-Pressurized Area Drainage
(Ref. Fig. 001, 002)
(1)Drainage at Aft Pressure Bulkhead
(a)A drain tube installed in the lower fuselage, aft of the AFT pressure bulkhead, allows residual liquids to drain overboard.
(2)Drainage of APU Compartment
(a)Residual liquids in the APU compartment are drained overboard via a drain tube attached to the LH APU access door.
(3)Wing drainage
(Ref. Fig. 006)
(a)The cans are installed at the wing front spar. Water ingress is collected in the cans and drains overboard via drain pipes.
(4)Pylon drainage
(a)The different pylon compartments are drained via a drain line system. The drain lines are routed to the trailing edge of the pylon, where residual liquids are drained overboard.





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Wing Drainage
Figure 006

AIRFRAME DRAINAGE - FWD, MID, AFT AND TAIL SECTION
MAINTENANCE PROCEDURE

NOTE : Should a defect be suspected during the following maintenance procedure, carry out an approved nondestructive test and refer to the SRM (Structural Repair Manual) for damage limitation. If a defect is subsequently proved to exist, carry out a structural repair or replace the component.

1. Reason for the job.

A. Check fuselage drainage from outside only.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, up to 5.0 m (19.0 ft.)
B.	Access Step, 2.6 m (8.50 ft.)
C.	Nonmetallic Probe
D.	Allen Key (Hexagon)

Referenced Procedures

- 51-80-11, P. Block 601	Fuselage Nose Section Drainage
- 51-80-21, P. Block 601	Fuselage FWD Intermediate Section Drainage
- 51-80-41, P. Block 601	Fuselage AFT Intermediate, AFT and Tail Section
- 51-80-00, P. Block 701	Airframe Drainage
	NTM - Nondestructive Testing Manual
	SRM - Structural Repair Manual

3. Procedure

WARNING : BEFORE PROCEEDING WITH MAINTENANCE WORK ON OR NEAR MECHANICAL FLIGHT CONTROLS OR PRIMARY FLIGHT CONTROL SURFACES, LANDING GEARS, ASSOCIATED DOORS OR ANY MOVING COMPONENT, MAKE CERTAIN THAT GROUND SAFETIES AND/OR WARNING NOTICES ARE IN CORRECT POSITION TO PREVENT INADVERTENT OPERATION OF CONTROLS.

A. Job Set-Up
(1)Position access platform and access step.
(2)For maintenance procedure of rubber flap drain valves and plastic drain valves (Ref. Fig. 201).
(a)Rubber flap drain valves.
1 Clean the drain hole with a nonmetallic probe.
2 Push up the rubber flap with the nonmetallic probe until the rubber flap is free to operate.
3 Clean the rubber flap valve area inside the aircraft fuselage.
a Insert a small flexibe water hose through the drain hole.
b Push up the rubber flap with the small water hose.
c Rinse well the rubber flap valve area with clean warm water 40 °C (104 °F).

d Remove the small water hose.
4 Repeat work step (c) until the rubber flap valve area is free of obstruction.
(b)Plastic drain valves .
1 Remove the piston.
2 Clean the piston with clear warm water 40 °C (104 °F).
3 Clean the channel section inside the aircraft fuselage.
a Insert a small flexible water hose through the drain hole.
b Rinse well the channel section area with clear warm water 40 °C (104 °F).
c Remove the flexible water hose.
4 Repeat work step (b) until the channel section is free of obstruction.
5 Apply sealant (Mat. No. 09-016) to the faying edge of the piston.
6 Install the piston.
(3)For maintenance procedure of drain tubes (Ref. Fig. 201).
(a)Open access door 312AR.
(b)Open APU access door 315AL.
(c)Insert the nonmetallic probe and turn it clock-wise until the obstruction is taken out.
(d)Clean the drain tube with clean water.
(e)Close access door 312AR.
(f)Close APU access door 315AL.

R **AIRFRAME DRAINAGE - FWD, MID, AFT AND TAIL SECTION**
R **MAINTENANCE PROCEDURE**

NOTE : Should a defect be suspected during the following maintenance procedure, carry out an approved nondestructive test and refer to the SRM (Structural Repair Manual) for damage limitation. If a defect is subsequently proved to exist, carry out a structural repair or replace the component.

1. Reason for the job.

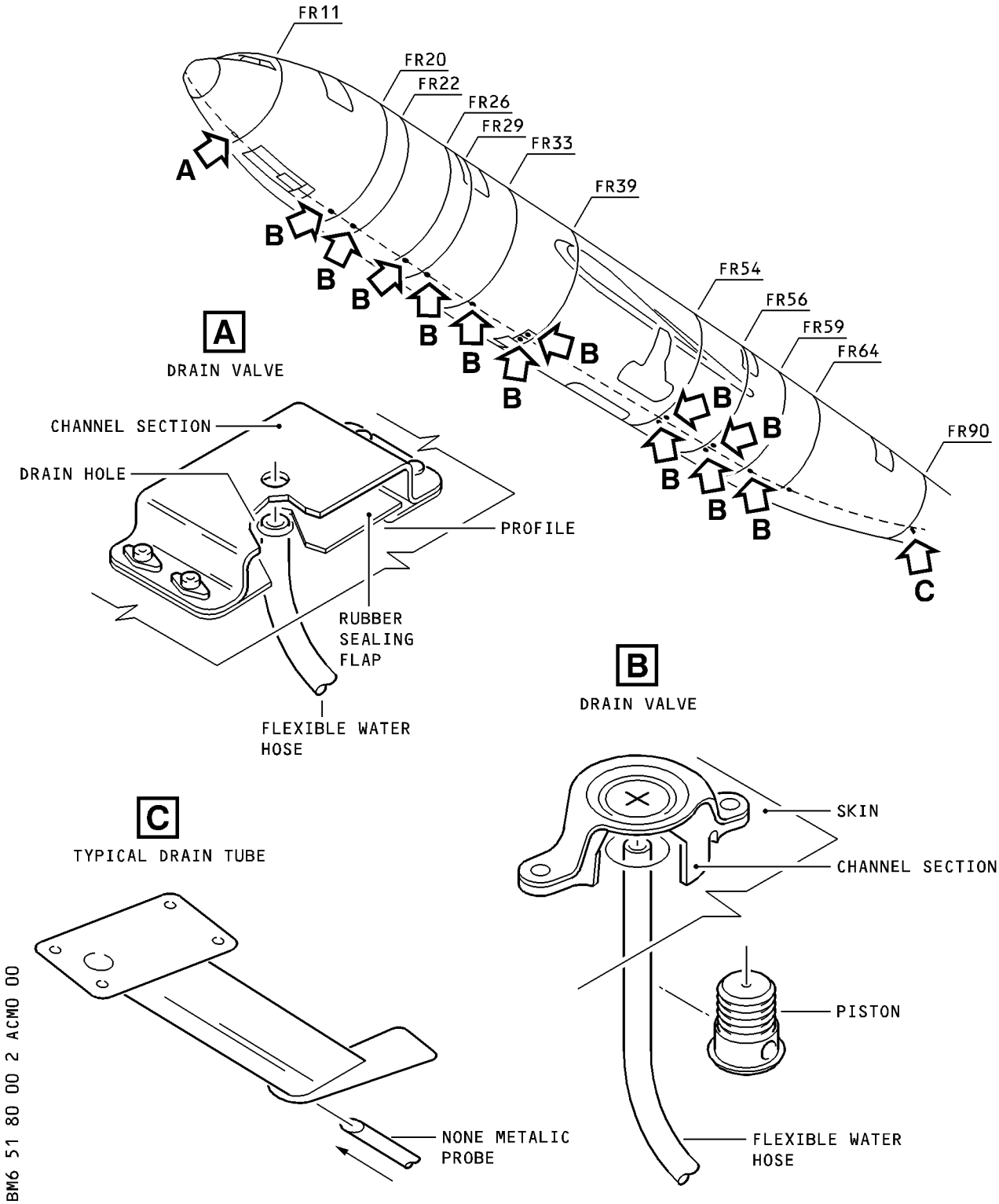
A. Check fuselage drainage from inside only.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, up to 5.0 m (19.0 ft.)
B.	Access Step, 2.6 m (8.50 ft.)
C.	Nonmetallic Probe
D.	Allen Key (Hexagon)

Referenced Procedures

- 51-80-11, P. Block 601	Fuselage Nose Section Drainage
- 51-80-21, P. Block 601	Fuselage FWD Intermediate Section Drainage
- 51-80-41, P. Block 601	Fuselage AFT Intermediate, AFT and Tail Section



Cleaning of Fuselage Drain Holes and Drain Pipes
Figure 201

- 51-80-00, P. Block 701 Airframe Drainage
NTM - Nondestructive Testing Manual
SRM - Structural Repair Manual

3. Procedure

WARNING : BEFORE PROCEEDING WITH MAINTENANCE WORK ON OR NEAR MECHANICAL FLIGHT CONTROLS OR PRIMARY FLIGHT CONTROL SURFACES, LANDING GEARS, ASSOCIATED DOORS OR ANY MOVING COMPONENT, MAKE CERTAIN THAT GROUND SAFETIES AND/OR WARNING NOTICES ARE IN CORRECT POSITION TO PREVENT INADVERTENT OPERATION OF CONTROLS.

A. Job Set-Up
(1)Position access platform and access step.

(2)Open access door 312AR.
(3)Do a general visual inspection of drain path to drain tube/mast AFT of FR 80.

(a)Make sure that in the drain/tube hole there are no obstruction and it is clean(Refer to 51-80-41, P. Block 601).
(b)Make sure that the drain path area (from FR80 to FR83, between STGR 43 LH/RH to Bottom Center Line) is clean and in the drain holes there are no obstruction.
(c)Close access door 312AR.

B. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : APPLY MATERIALS IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS. SOME MATERIALS ARE FLAMMABLE AND/OR TOXIC. AVOID INHALING FUMES. USE IN WELL VENTILATED AREA. OBSERVE FIRE REGULATIONS.
SOME MATERIALS CONTAIN IRRITANTS. WEAR PROTECTIVE GLOVES AND PROTECT EYES. WASH IMMEDIATELY, WITH CLEAN WATER, IF SKIN OR EYES ARE AFFECTED.

1. Reasons for the Job

A. To prevent malfunction of drain valves and drain tubes.

B. To check corrosion and paint finish deterioration around drain valves and drain tubes.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, 5.0 m (16.0 ft.)
B.	Access Steps, 3.0 m (10.0 ft.)
C. Material No. 05-005	Special Materials (Ref. 20-31-00)
D. Material No. 05-027	Special Materials (Ref. 20-31-00)
E. Material No. 11-005	Cleaning Agents (Ref. 20-31-00)
F. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 25-52-22, P. Block 401	Ball Mats
- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 51-80-11, P. Block 601	Fuselage Nose Section Drainage
- 51-80-21, P. Block 601	Fuselage Forward Intermediate Section Drainage
- 51-80-31, P. Block 601	Fuselage Center Section Drainage
- 51-80-41, P. Block 601	Fuselage Aft Intermediate, Aft and Tail Section Drainage
- 51-80-51, P. Block 601	Wing Drainage
- 51-80-61, P. Block 601	Pylon Drainage
- 52-10-00, P. Block 301	Passenger/Crew Doors - Special Precautions
- 52-23-00, P. Block 301	Emergency Exit - Special Precautions
- 52-30-00, P. Block 301	FWD and AFT Cargo Compartment Doors
- 53-10-27, P. Block 401	Avionics Compartment Floor Panels
- 53-10-29, P. Block 401	FWD Cargo Compartment Floor Panels
- 53-10-33, P. Block 401	AFT Cargo Compartment Floor Panels
- 53-10-35, P. Block 401	BULK Cargo Compartment Floor Panels

3. Procedure

A. Job Set-Up
(1)Position access platform and access steps.

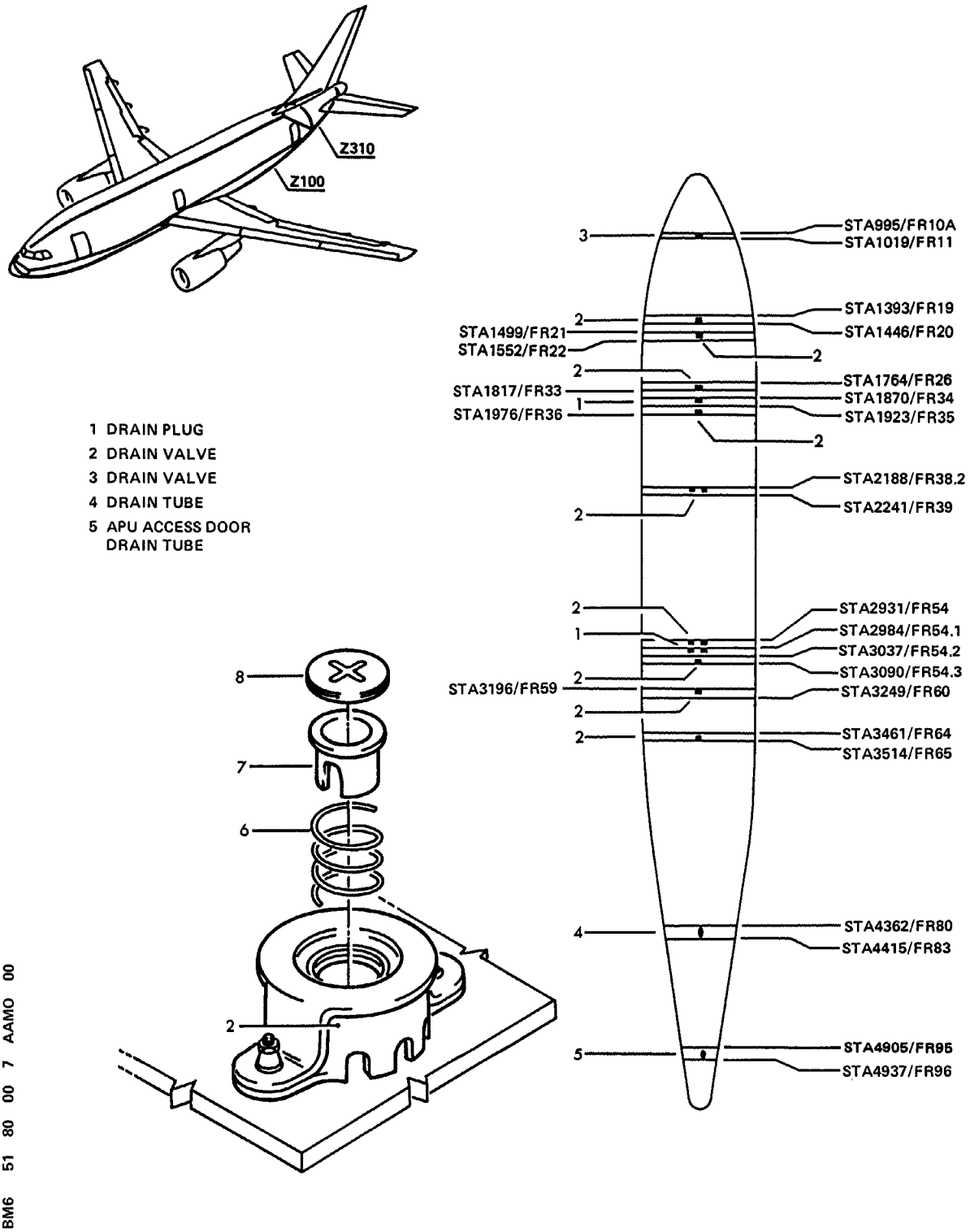
(2)Open FWD and AFT cargo compartment doors and secure with safety locks (Ref. 52-30-00, P. Block 301).
(3)Open avionics compartment access door.
(4)Open BULK cargo compartment door.
(5)Gain access to drain valves, drain plugs and drain tubes.
(a)In avionics compartment in area of drain valve, remove the following:
1 Floor panels (Ref. 53-10-27, P. Block 401)
2 Heat and sound insulation
(b)In FWD cargo compartment in area of drain valve and drain plug, remove the following:
1 Floor panels (Ref. 53-10-29, P. Block 401) or ball mats (Ref. 25-52-22, P. Block 401)
2 Heat and sound insulation
(c)Between STA2241(FR39) and STA2294(FR40) in area of drain valve, remove the following:
1 Access door 136AR
2 Fiberglass cover, protecting pipes, on LH side of lower fuselage
3 Fiberglass floor panel, aft of STA2241(FR39)
(d)In AFT cargo compartment in area of drain valves and drain plugs, remove the following:
1 Floor panels (Ref. 53-10-33, P. Block 401) or ball mats (Ref. 25-52-22, P. Block 401)
2 Heat and sound insulation
(e)In BULK cargo compartment in area of drain valve, remove the following:
1 Floor panels (Ref. 53-10-35, P. Block 401)
2 Heat and sound insulation
(f)Drain tube aft of STA4362(FR80)
1 Open access door 312AR.
NOTE : Drain tube is located on fuselage structure.
(g)Drain tube in APU access door 315AL
1 Open APU access door 315AL.
(6)Gain access to the following:
(a)Cockpit window drainage
1 Remove heat and sound insulation in area of window drainage.
(b)Passenger/crew door drainage
WARNING : SPECIAL PRECAUTIONS MUST BE FOLLOWED.
1 Safety emergency escape slide, emergency operation cylinder and door warning system (Ref. 52-10-00, P. Block 301).
2 Open passenger/crew doors.
3 Open AFT cabin underfloor compartment access door 162AZ.
4 Remove heat and sound insulation in drainage areas.
(c)Emergency exit drainage
WARNING : SPECIAL PRECAUTIONS MUST BE FOLLOWED.
1 Safety emergency escape slide and exit warning system (Ref. 52-23-00, P. Block 301).
2 Open emergency exits.
(d)Wing drainage
1 Open relevant wing access panels.
(e)Pylon drainage
1 Remove relevant pylon access panels.

B. Cleaning
(1)Clean drain plugs, drain tubes and surrounding area.
(a)For cleaning procedure refer to 51-75-10, P. Block 801.
(b)Subsequently rinse working area with clean water.
(c)Make certain rinsing water discharges through drain valves and drain tubes.
(2)Clean drain valves
(a)Remove retaining cap (8), piston (7) and spring (6) from drain valve (2).
(b)Clean parts with cleaning agent (Mat. No. 11-004).
(c)Install spring (6), piston (7) and retaining cap (8) in drain valve (2).
(Ref. Fig. 701)
(3)Clean the drainage at the following:
- Cockpit windows
- Passenger/crew doors
- Emergency exits
- BULK cargo compartment door sill
- Wing drainage
- Pylon drainage

(a)Clean gutters, cans, pans, pipes and hoses internally, using 10 % solution of soapy water (Mat. No. 11-005)
(b)Rinse working area with clean water.
(c)Make certain that rinsing water drains overboard.
(4)For inspection/check of:
- Fuselage nose section drainage, refer to 51-80-11, P. Block 601.
- Fuselage forward intermediate section drainage refer to 51-80-21, P. Block 601.
- Fuselage center section drainage, refer to 51-80-31, P. Block 601.
- Fuselage aft intermediate, aft and tail section drainage, refer to 51-80-41, P. Block 601.
- Wing drainage, refer to 51-80-51, P. Block 601.
- Pylon drainage, refer to 51-80-61, P. Block 601.

C. Painting
(1)Remove corrosion (Ref. 51-74-10, P. Block 801).
(2)Repair paint damage (Ref. 51-75-10, P. Block 801).

D. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Check coating of moisture-removing oil (Mat. No. 05-027) and corrosion-preventive compound (Mat. No. 05-005) in working area for good condition and renew if necessary (Ref. 51-75-10, P. Block 801).
(3)Install all heat and sound insulation.
(4)Install floor panels in avionics compartment (Ref. 53-10-27, P. Block 401).
(5)Install floor panels in FWD cargo compartment (Ref. 53-10-29, P. Block 401).
(6)Install fiberglass floor panel and cover, aft of STA2241(FR39).
(7)Install floor panels in AFT cargo compartment (Ref. 53-10-33,



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Drain Valve
Figure 701

P. Block 401).
(8)Install floor panels in BULK cargo compartment (Ref. 53-10-35, P. Block 401).
(9)Install access panel 136AR.
(10)Close access door 312AR.
(11)Close APU access door 315AL.
(12)Close aft cabin underfloor compartment access door 162AZ.
(13)Close BULK cargo compartment door.
(14)Close avionics compartment access door.
(15)Remove safety locks and close FWD and AFT cargo compartment doors (Ref. 52-30-00, P. Block 301).
(16)Not applicable
WARNING : SPECIAL PRECAUTIONS MUST BE FOLLOWED.
(17)Close emergency exit.
(18)Activate emergency exit warning system (Ref. 52-23-00, P. Block 301).
WARNING : SPECIAL PRECAUTIONS MUST BE FOLLOWED.
(19)Arm emergency operation cylinder and activate door warning system (Ref. 52-10-00, P. Block 301).
(20)Close passenger/crew doors.
(21)Close wing access panel.
(22)Close pylon access panels.
(23)Remove access platform and access steps.

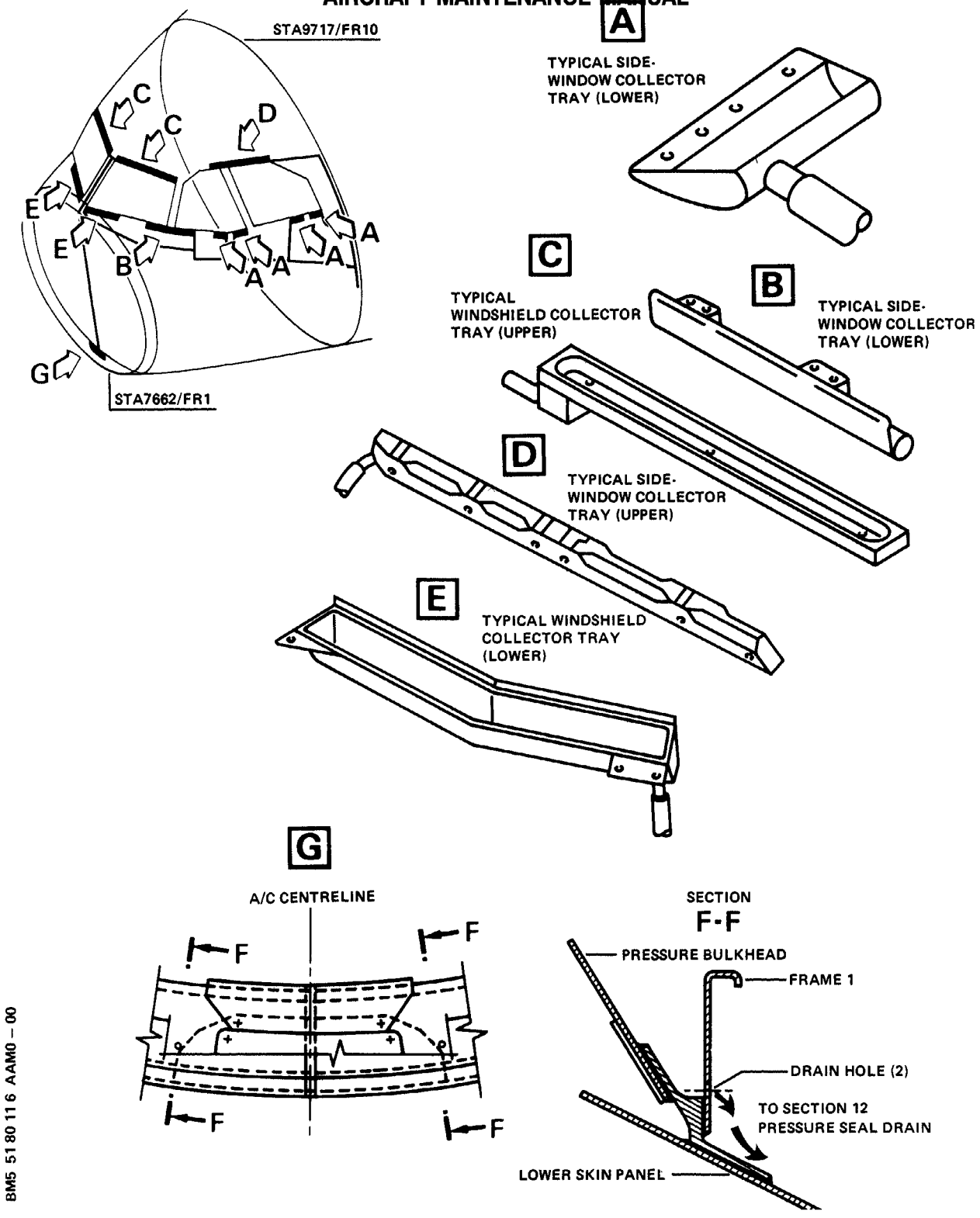
1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform 5 m (19.0 ft)
B. Material No. 09-016	Sealants (Ref. 20-31-00)
Referenced Procedures	
R - 25-71-13, P. Block 401	Attachment Assembly Insulation
- 51-74-10, P. Block 801	Removal of Corrosion
- 51-76-10, P. Block 801	Repair of Sealing
- 51-80-00, P. Block 701	Airframe Drainage
- 52-10-00, P. Block 301	Passenger/Crew Doors - Special Precautions
- 53-10-27, P. Block 401	Avionics Compartment Floor Panels

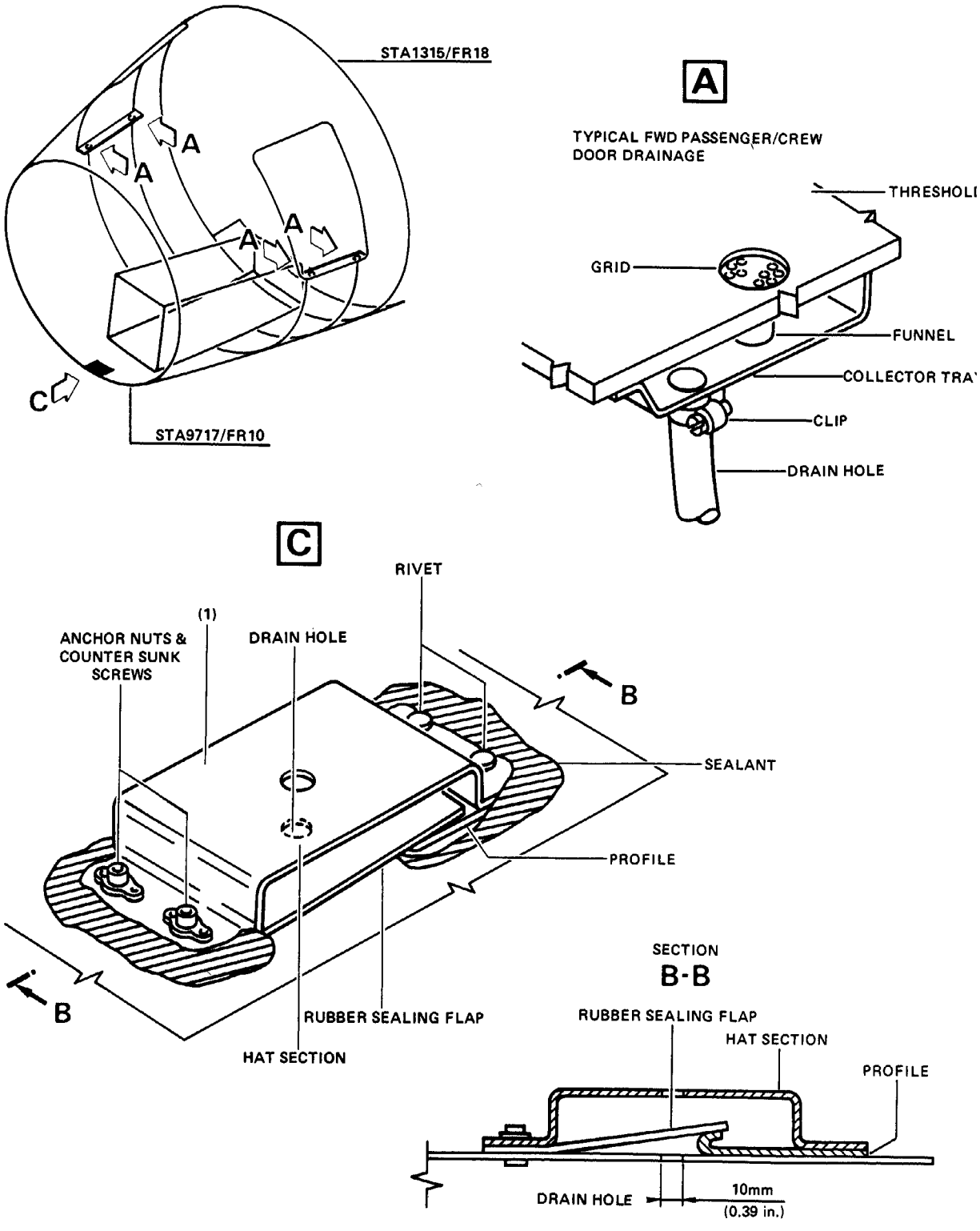
2. Procedure (Ref. Fig. 601, 602)

A. Job Set-Up
(1)Position access platform
(2)Open avionics compartment access door 121BL.
(3)For drain valve (1).
(a)Remove floor panels (Ref. 53-10-27, P. Block 401).
(b)Remove heat and sound insulation.
(4)For drain hole (2)
(a)Remove floor panels (Ref. 53-10-27, P. Block 401).
R (b)Remove heat and sound insulation (Ref. 25-71-13, P. Block 401).
(5)For inspection of forward passenger/crew door threshold draining system.
(a)Remove heat and sound insulation from draining area.
WARNING : SPECIAL PRECAUTIONS MUST BE FOLLOWED (Ref. 52-10-00, P. Block 301).
(b)Open forward passenger/crew door.

B. Inspection/Check
(Ref. Fig. 601, 602)
(1)Visual inspection/check of drain valve (1).
NOTE : Should a crack be suspected during the following inspection/check, an approved non destructive test must be carried out. If a crack is subsequently proved to exist, a structural repair must be carried out or the component replaced.
(a)Clean drain valve and surrounding area (Ref. 51-80-00, P. Block 701).
(b)Check drain valve for damage. Check drain holes for blockage.
(c)Check condition of sealant. Renew material No. 09-016, if necessary. For sealant repair, refer to 51-76-16, P. Block 801.
(d)Check rubber strip for damage and security of attachment.
(e)Check the drain valve surrounding area for corrosion. Should corrosion be found, refer to 51-74-10, P. Block 801.
(2)Visual inspection/check of drain holes (2).
(a)Check that drain holes on frames provided for evacuation of water to drain valves are not blocked.
(b)Check for traces of corrosion in the drain holes surrounding area.



Flight Compartment Window Drainage and Drain Hole
Figure 601



Drain Valve and Passenger/Crew Door Drainage
Figure 602

Should corrosion be found, refer to 51-74-10, P. Block 801.
(3)Visual inspection/check of forward passenger/crew door draining system.
(a)On door threshold check funnel filter for blockage and security of attachment.
(b)Check drain tubes for correct condition. Check for blockage.
(c)Check attachments for correct condition.
(d)Check for traces of corrosion on structure at each drain tube outlet. Should corrosion be found, refer to 51-74-10, P. Block 801.
(4)Inspection/check of flight compartment window panel collector trays.
(a)Check for blockage of collector trays.

C. Test
(1)At drain valve (1) pour a quantity of clean water and make certain that this water is drained overboard through drain holes.
(2)A level of drain hole, at FR1, pour a quantity of clean water and make certain that this water runs to the drain valve and is then drained overboard.
(3)At level of door threshold, pour a quantity of clean water on the grid and make certain that this water is drained towards the drain valve through drain tubes and drain holes.
(4)At level of flight compartment window panels, pour a quantity of clean water in collector trays and make certain that this water is drained overboard.

D. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
R (2)After inspection/check of drain hole (2).
R (a)Install heat and sound insulation (Ref. 25-71-13, P. Block 401).
R (b)Install floor panels (Ref. 53-10-27, P. Block 401).
R (3)After inspection/check of drain valve (1).
R (a)Install heat and sound insulation.
R (b)Install floor panels (Ref. 53-10-27, P. Block 401).
R (4)After inspection/check of forward passenger/crew door draining system.
WARNING : SPECIAL PRECAUTIONS MUST BE FOLLOWED (Ref. 52-10-00, P. Block 301).
(a)Install heat and sound insulation.
(b)Close forward passenger/crew door.
R (5)Close avionics compartment access door 121BL.
R (6)Remove access platform.

FUSELAGE FWD INTERMEDIATE SECTION DRAINAGE - INSPECTION/CHECK

NOTE : Should a defect be suspected during the following inspection/check, an approved non-destructive test must be carried out.
If a defect is subsequently proved to exist, a structural repair must be carried out, or the component must be replaced.

1. Equipment and Materials

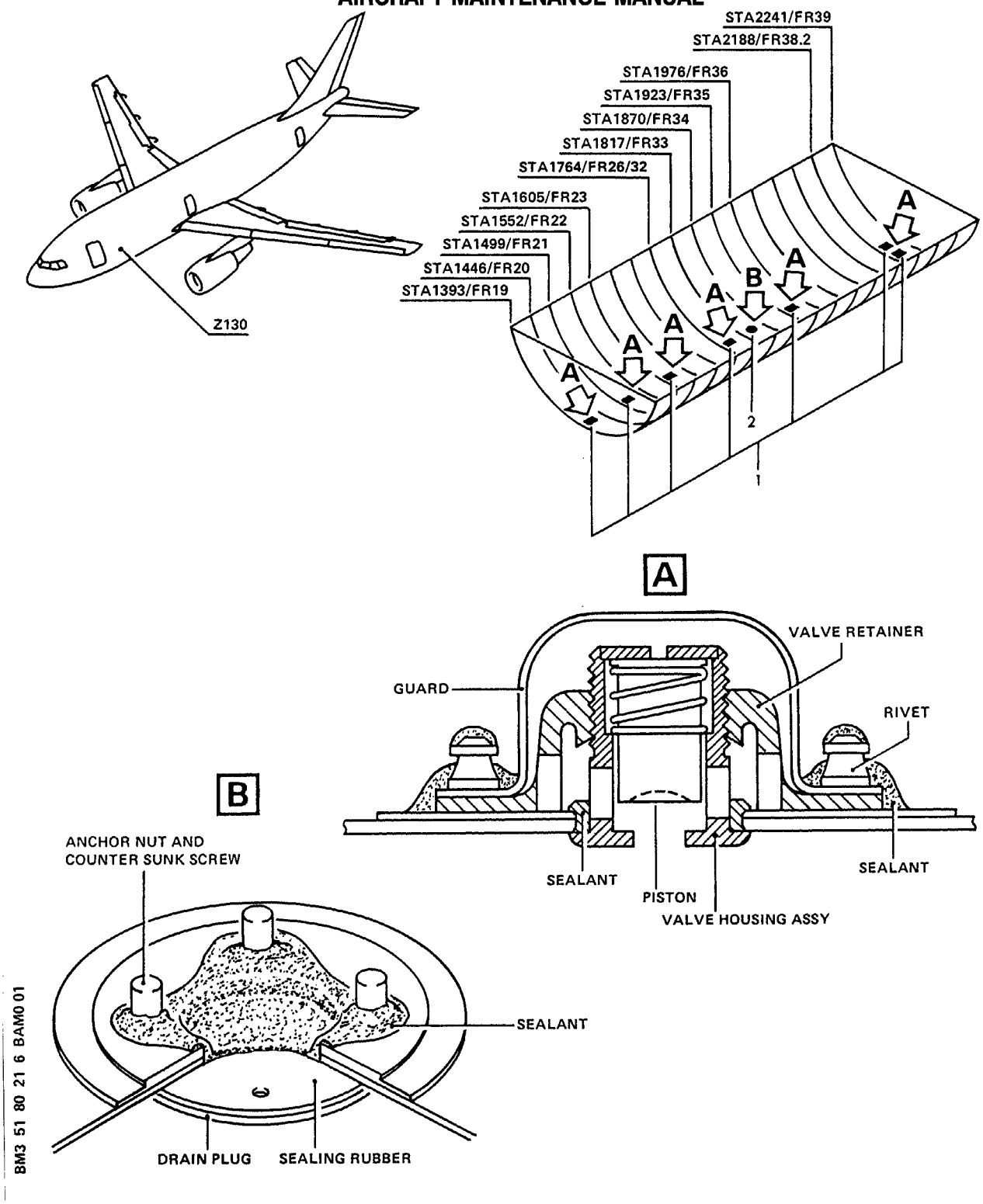
ITEM	DESIGNATION
A.	Access Platform, 1.5 m (4.8 ft.)
B.	Access Platform, 2.7 m (9 ft.)
C.	Flashlight
D.	Inspection Mirror
E.	Lint-free Cloth
F. Material No. 08-017	Bonding and Adhesive Compounds (Ref. 20-31-00)
G. Material No. 09-016	Sealants (Ref. 20-31-00)

Referenced Procedures

- 25-52-22, P. Block 401	Ball Mats
- 51-74-10, P. Block 801	Removal of Corrosion
- 51-76-10, P. Block 801	Repair of Sealing
- 51-80-00, P. Block 701	Airframe Drainage
- 52-30-00, P. Block 1	Cargo Compartment Doors
- 52-30-00, P. Block 301	FWD and AFT Cargo Compartment Doors
- 53-10-29, P. Block 401	FWD Cargo Compartment Floor Panels

2. Procedure
(Ref. Fig. 601)

A. Job Set-Up
(1)Position access platform.
(2)Open FWD cargo compartment door (Ref. 52-30-00, P. Block 1).
(3)Install door actuator safety lock to FWD cargo compartment door actuator (Ref. 52-30-00, P. Block 301).
(4)For inspection/check of drain valves (1) between STA1393/FR19 and STA1499/FR24.
(a)Remove ball mats (Ref. 25-52-22, P. Block 401).
(b)Remove heat and sound insulation.
(5)For inspection/check of drain valves (1) and drain plug (2) between STA1764/FR26/32 and STA1976/FR36.
(a)Remove FWD cargo compartment floor panels between STA1711/FR25 and STA1976/FR36 (Ref. 53-10-29, P. Block 401).
(b)Remove heat and sound insulation.
(6)For inspection/check of drain valves (1) between STA2188/FR38.2 and STA2241/FR39.
(a)Remove access door 136AR.
(b)Remove heat and sound insulation.



Drain Valves and Drain Plug
Figure 601

R

B. Visual Inspection/Check of Drain Valves and Drain Plug
(1)Check drain valves (1).
(a)Clean drain valves (1) and surrounding area (Ref. 51-80-00, P. Block 701).
(b)Check that drain valves (1) are secure, free from damage and that drain holes are not blocked.
(c)Check condition of sealant (Material No. 09-016) and renew if necessary. For repair of sealing refer to 51-76-10, P. Block 801.
(d)Check rubber sealing strip for deterioration and security of attachment.
(e)Inspect area surrounding drain valves (1) for corrosion. For removal of corrosion refer to 51-74-10, P. Block 801.
(2)Check drain plug (2)
(a)Clean drain plug (2) and surrounding area (Ref. 51-80-00, P. Block 701).
(b)Check that drain plug (2) is secure and free from damage.
(c)Check condition of sealing rubber and renew if necessary using adhesive (Material No. 08-017).
(d)Inspect area surrounding drain plug 2 for corrosion. For removal of corrosion refer to 51-74-10, P. Block 801.

R C. Visual Inspection/Check of Drain Holes from Outside of Fuselage
R (1)Check that the drain holes are free from obstructions and that they
R are not blocked from the pistons of the drain valves (1).

R D. Test
R (1)Pour a quantity of clean water around drain valves (1) and drain plug
R (2) and ensure that water drains outboard, through drain hole.
R (2)Make certain that drain holes in stringers and auxiliary structure are
R clean and free from obstructions.

R E. Close-Up
R (1)Position drain cover and install countersunk screws.
R (2)Make certain that work area is clean and clear of tools and mis-
R cellaneous items of equipment.
R (3)Replace heat and sound insulation.
R (4)Install ball mats (Ref. 25-52-22, P. Block 401).
R (5)Install FWD cargo compartment floor panels (Ref. 53-10-29,
R P. Block 401).
R (6)Install access panel 136AR.
R (7)Remove door actuator safety lock (Ref. 52-30-00, P. Block 301).
R (8)Close FWD cargo compartment door (Ref. 52-30-00, P. Block 1).
R (9)Remove access platforms.

1. Equipment and Materials

ITEM	DESIGNATION
A.	5 m (19.0 ft)
Referenced Procedures	
- 32-12-11, P. Block 301	Main Gear, Main Door (Ground Door(s) Opening)
- 51-74-10, P. Block 801	Removal of Corrosion
- 52-10-00, P. Block 301	Passenger/Crew Doors - Special Precautions
- 53-15-31, P. Block 401	Panels - Air Conditioning Compartment Floor

2. Procedure
(Ref. Fig. 601)

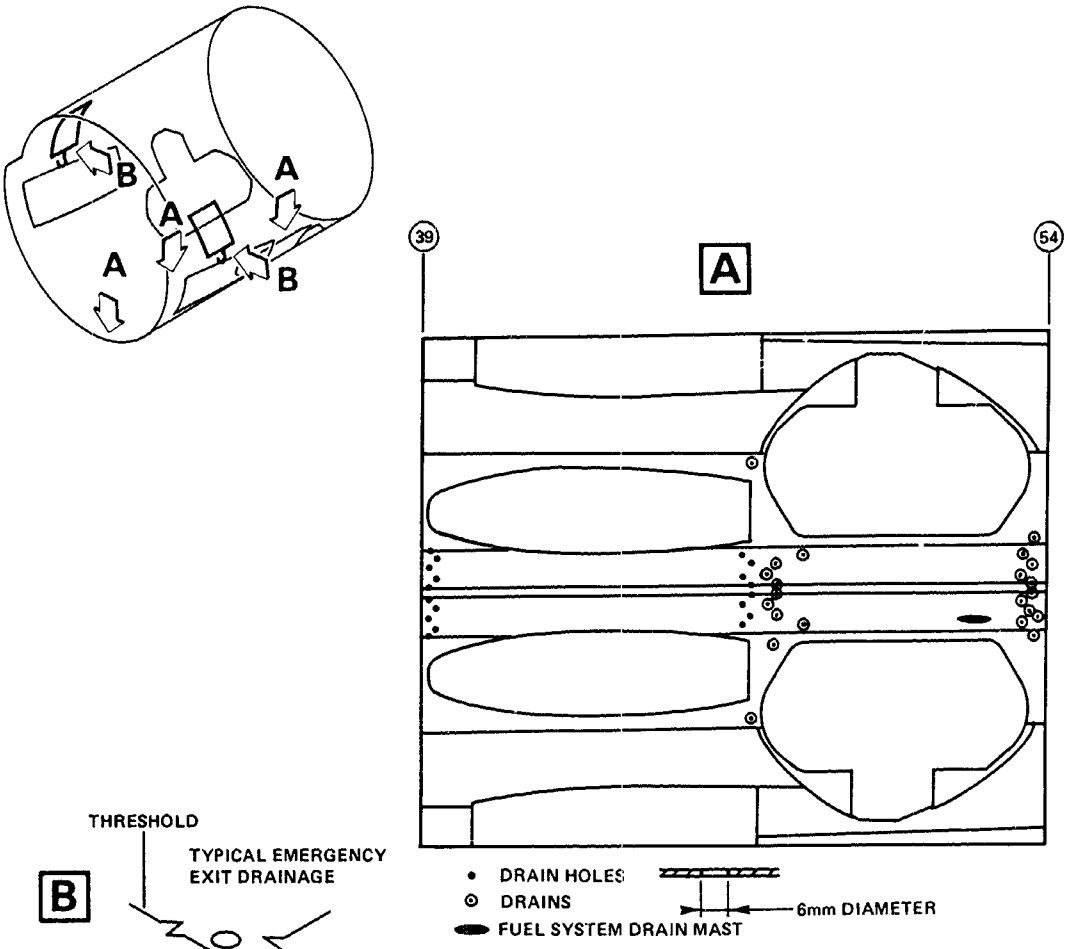
A. Job Set-Up
(1)Position access platform.
(2)Open main landing gear doors (Ref. 32-12-11, P. Block 301).
(3)At STA2612/FR47/48, remove air conditioning compartment access door 147BZ.
(4)Remove floor panels (Ref. 53-15-31, P. Block 401).
(5)For inspection of emergency exit threshold draining system:
WARNING : SPECIAL PRECAUTIONS MUST BE FOLLOWED (Ref. 52-10-00, P. Block 301).
(a)Open forward passenger/crew door.
(b)Open emergency exit.

B. Inspection/Check
(1)Visually check draining system in air conditioning and hydraulics compartments.
(a)Drain holes
- Check for blockage of drain holes at FR39/STA2241 and FR47/48/STA2612.
- Check for traces of corrosion in drain hole surrounding areas. Should corrosion be found, refer to 51-74-10, P. Block 801.

(b)Drains
- Check for blockage of drains at FR47/48/STA2612, FR49/STA2665 and FR54/STA2931.
- Check for traces of corrosion in the drain surrounding areas. Should corrosion be found, refer to 51-74-10, P. Block 801.

(c)Fuel system drain mast
- Check for blockage of drain mast.
- Check that, in the drain mast surrounding area, the paint coating is not damaged; check for corrosion (Ref. 51-74-10, P. Block 801).

(2)Visual check of emergency exit threshold draining system
(a)Check drain holes for blockage.
(b)Check reinforced drain hose for damage. Check for leakage.



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Airframe Drainage
Figure 601

(c)Check attachments and couplings for correct condition.
(d)Check for traces of corrosion at coupling. Should corrosion be found, refer to 51-74-10, P. Block 801.

C. Test
(1)Pour a quantity of clean water at level of drain holes and make certain that water drains overboard through holes.
(2)Pour a quantity of clean water in emergency exit threshold drain holes and make certain that water drains overboard through holes; check for leakage.

D. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)After inspection/check of emergency exit draining:
WARNING : SPECIAL PRECAUTIONS MUST BE FOLLOWED (Ref. 52-10-00, P. Block 301).
(a)Close emergency exit.
(b)Close forward passenger/crew door.
(3)Install floor panels in air conditioning and avionics compartments (Ref. 53-15-31, P. Block 401).
R CAUTION : MAKE SURE THAT ALL FASTENERS AND PIP PINS ARE CORRECTLY
R INSTALLED AND SAFETIED WHEN YOU INSTALL/CLOSE THE ACCESS
R DOORS/PANELS AT FR47.
(4)Install air conditioning access door 147BZ at STA2612/FR47/48.
(5)Remove access platform.
(6)Close main landing gear doors (Ref. 32-12-11, P. Block 301).

FUSELAGE AFT INTERMEDIATE, AFT AND TAIL SECTIONS
DRAINAGE - INSPECTION/CHECK

NOTE : Should a defect be suspected during the following inspection/check, an approved nondestructive test must be carried out.
If a defect is subsequently proved to exist, a structural repair must be carried out, or the component must be replaced.

R

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, up to 5.0 m (19.0 ft.)
B.	Access Steps, 2.6 m (8.50 ft.)
C. Material No. 05-005	Special Materials (Ref. 20-31-00)
D. Material No. 05-027	Special Materials (Ref. 20-31-00)
E. Material No. 08-017	Bonding and Adhesive Compounds (Ref. 20-31-00)
F. Material No. 09-016	Sealants (Ref. 20-31-00)

Referenced Procedures

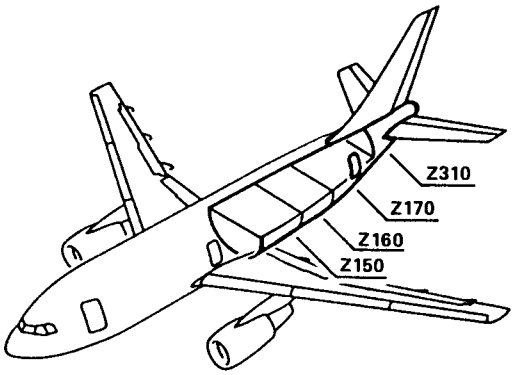
- 25-52-22, P. Block 401	Ball Mats
- 51-74-10, P. Block 801	Removal of Corrosion
- 51-75-10, P. Block 801	Repair of Paint Coatings
- 51-76-10, P. Block 801	Repair of Sealing
- 51-80-00, P. Block 701	Airframe Drainage
- 52-10-00, P. Block 301	Passenger/Crew Doors - Special Precautions
- 52-30-00, P. Block 301	FWD and AFT Cargo Compartment Doors
- 53-10-17, P. Block 601	Bulkheads
- 53-10-33, P. Block 401	AFT Cargo Compartment Floor Panels
- 53-10-35, P. Block 401	BULK Cargo Compartment Floor Panels
	NTM - Nondestructive Testing Manual
	SRM - Structural Repair Manual

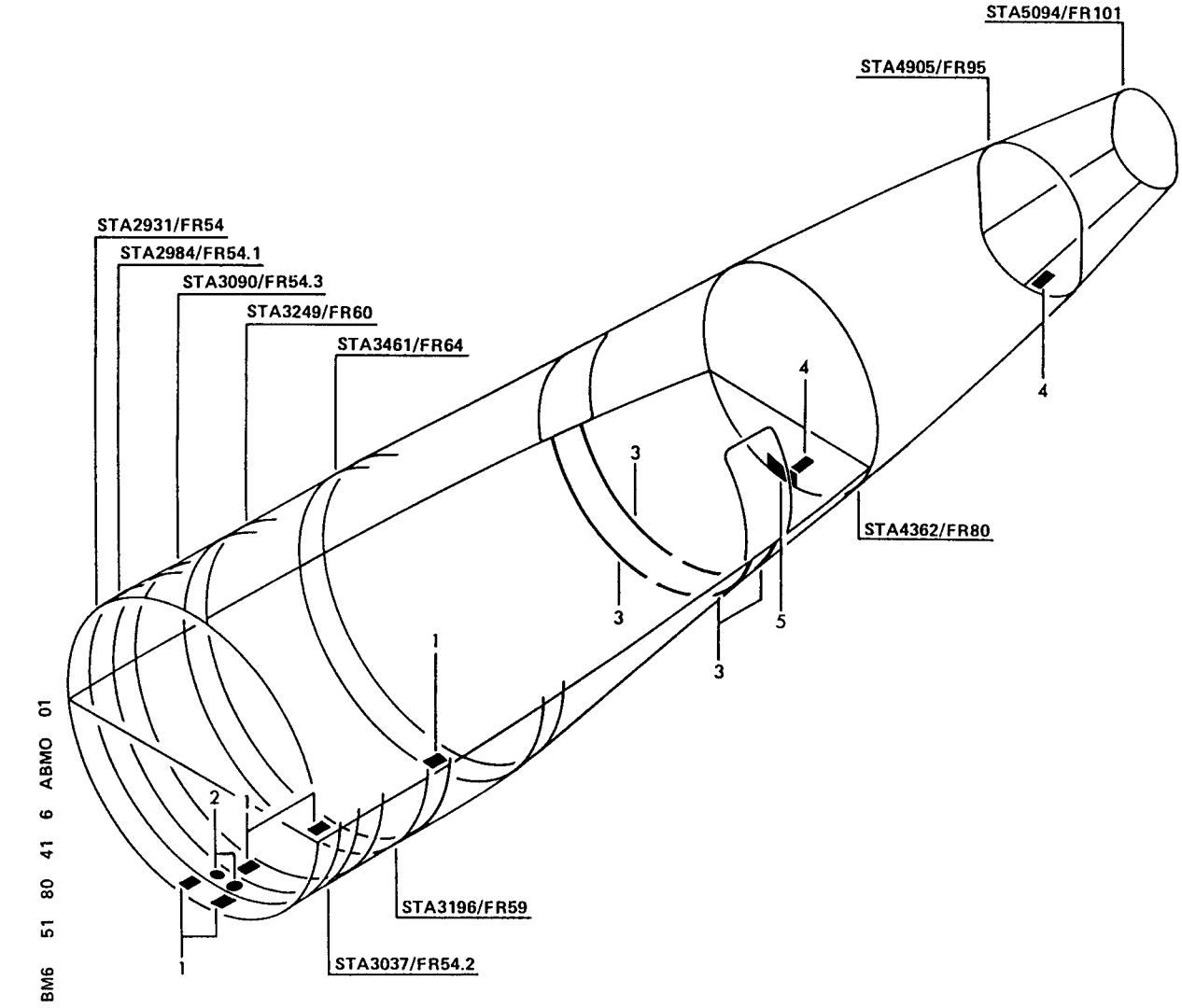
2. Procedure

A. Job Set-Up
(1)Position access platform and access steps.
(2)Open AFT cargo compartment door and secure with safety lock (Ref. 52-30-00, P. Block 301).
(3)Open BULK cargo compartment door.
(4)For inspection/check of drain valves (1) and drain plugs (2).
(a)Remove the following from AFT cargo compartment in area of drain valves and drain plugs:
1 Sidewall panels.
2 Ball mats (Ref. 25-52-22, P. Block 401).
3 Floor panels (Ref. 53-10-33, P. Block 401).
4 Heat and sound insulation.
(b)Remove the following from BULK cargo compartment in area of drain valves and drain plugs:
1 Floor panels (Ref. 53-10-35, P. Block 401).
2 Heat and sound insulation.
(5)For inspection/check of drain tubes (4).
(a)Open access door 312AR.
(b)Open APU access door 315AL.
(6)For inspection/check of AFT passenger/crew door drainage (3).
(a)Open aft cabin underfloor compartment access door 162AZ.
(b)Remove fuselage aft section insulation in drainage area.
WARNING : SPECIAL PRECAUTIONS MUST BE FOLLOWED.
(c)Safety emergency escape slide, emergency operation cylinder and door warning system (Ref. 52-10-00, P. Block 301).
(d)Open AFT passenger/crew doors.
(8)For inspection/check of bulk head drain holes (5).
(a)Take access using cat walk in the fuselage aft section.
(b)Remove insulation in drainage area.

B. Inspection/Check of Drain Valves (1) (Ref. Fig. 601)
(1)Clean drain valves (1) and surrounding area (Ref. 51-80-00, P. Block 701).
(2)Check that drain valves (1) are secured, free from damage and that drain holes are not blocked.
(3)Check drain holes in fuselage for general condition and freedom of obstructions from outside.
(4)Check condition of sealant (Mat. No. 09-016) and renew if necessary. For repair of sealing refer to 51-76-10, P. Block 801.
(5)Check rubber sealing strip for condition and security of attachment.
(6)Check piston and spring for good condition and replace, if necessary.
(7)Inspect area surrounding drain valves (1) for corrosion. For removal of corrosion refer to 51-74-10, P. Block 801.

C. Inspection/Check of Drain Plugs (2) (Ref. Fig. 601)
(1)Clean drain plugs (2) and surrounding area(Ref. 51-80-00, P. Block 701).
(2)Check that drain plugs are secure and free from damage.
(3)Check seals of drain plugs for good condition and renew if necessary, using adhesive (Mat. No. 08-017).





R

Airframe Drainage
Figure 601

(4)Check condition of sealant (Mat. No. 09-016) and renew if necessary. For repair of sealing refer to 51-76-10, P. Block 801.
(5)Check lanyard and split-ring for condition and renew if necessary.
(6)Inspect area surrounding drain plugs (2) for corrosion. For removal of corrosion refer to 51-74-10, P. Block 801.

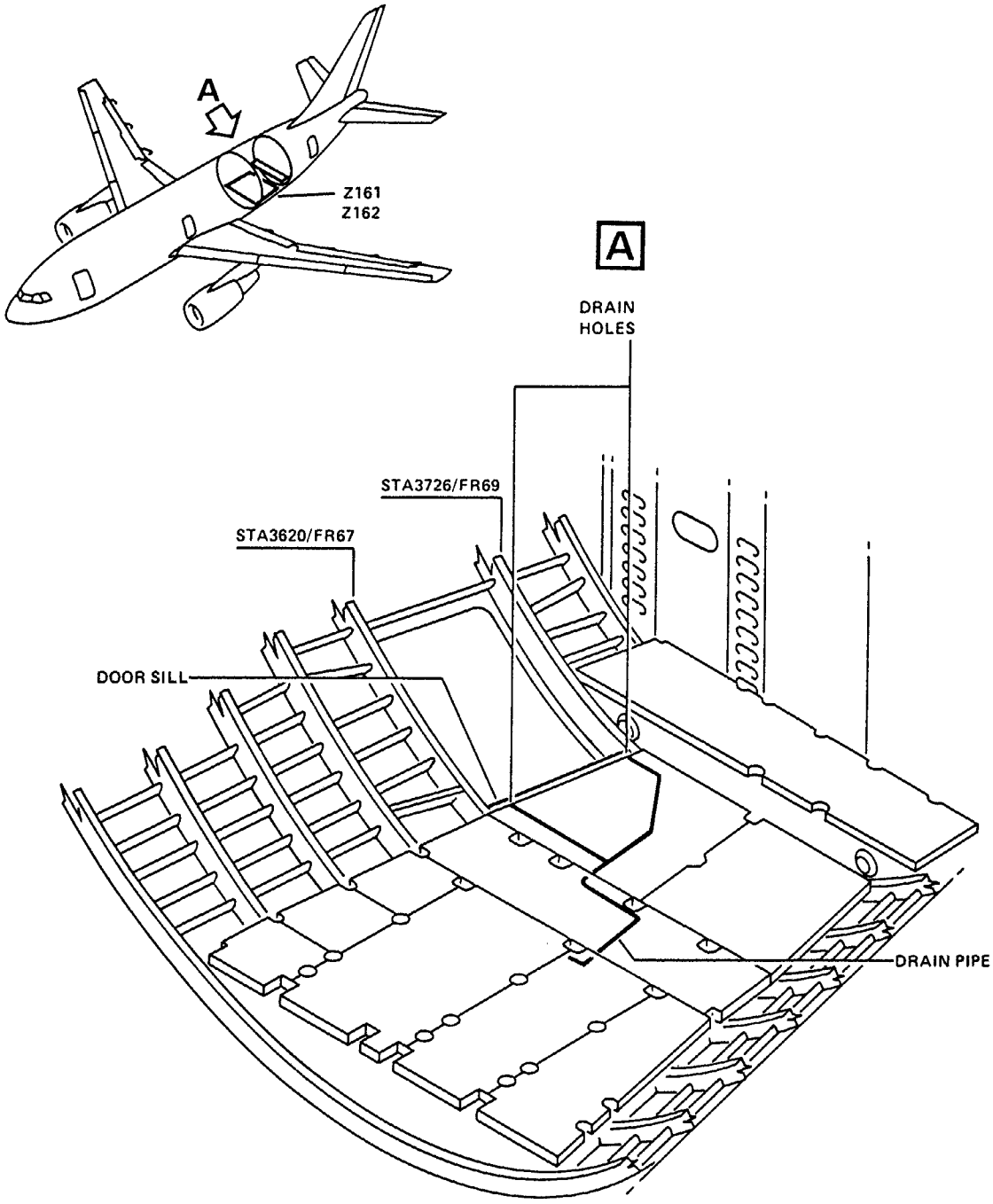
D. Inspection/Check of AFT Passenger/Crew Door Drainage (3) (Ref. Fig. 601)
(1)Check that screen in funnel, at AFT passenger/crew door threshold, is secure and not blocked.
(2)Check that drain hoses (3) are serviceable and not blocked.
(3)Check that hardware is serviceable and secure.
(4)Inspect structure for corrosion in areas where drain hoses (3) are attached to structure and at outlets of drain hoses (3). For removal of corrosion refer to 51-74-10, P. Block 801.

E. Inspection/Check of Drain Tubes (4) (Ref. Fig. 601)
(1)Clean drain tubes (4) and surrounding area (Ref. 51-80-00, P. Block 701).
(2)Check that drain tubes (4) are secure and not blocked.
(3)Check drain holes in fuselage for general condition and freedom of obstructions from outside.
(4)Check condition of sealant (Mat. No. 09-016) and renew if necessary. For repair of sealing refer to 51-76-10, P. Block 801.
(5)Check drain tubes (4) for cracks. Cracked components must be replaced.
(6)Inspect area around drain tubes (4) for corrosion. For removal of corrosion refer to 51-74-10, P. Block 801.

F. Inspection of BULK Cargo Compartment Door Sill Drainage (Ref. Fig. 602)
(1)Check that drain holes and pipes are secure and not blocked.
(a)Pour a quantity of clean water in area of drain holes and ensure that water drains via drain pipes to the lower point of the fuselage.

R G. Inspection/Check of Drain Holes (5) for AFT Pressure Bulk Head (Ref. Fig. 603)
R (1)Clean drain holes (5) and surrounding area.
R (2)Check that drain holes (5) are free of obstruction.
R (3)Check condition of sealant (Mat. No. 09-021 and 09-013) and renew if necessary (Refer to 51-76-10 ,P. Block 801).
R (4)Inspect area around drain holes (5) for corrosion. For removal of corrosion refer to 51-74-10, P.Block 801 and 53-10-17, P. Block 601.
R (Ref. Fig. 603)

R H. Test
(1)Check drain valves for correct function.
(a)Push and hold piston in closed position.
(b)Pour a quantity of clean water around drain valves.
(c)Ensure that water does not drain overboard.
(d)If water drains overboard replace piston and housing.
(e)Release piston and check that water drains overboard.
(2)Pour a quantity of clean water around drain valves, drain plugs, AFT passenger crew door drainage and drain tubes, and ensure that water drains overboard.



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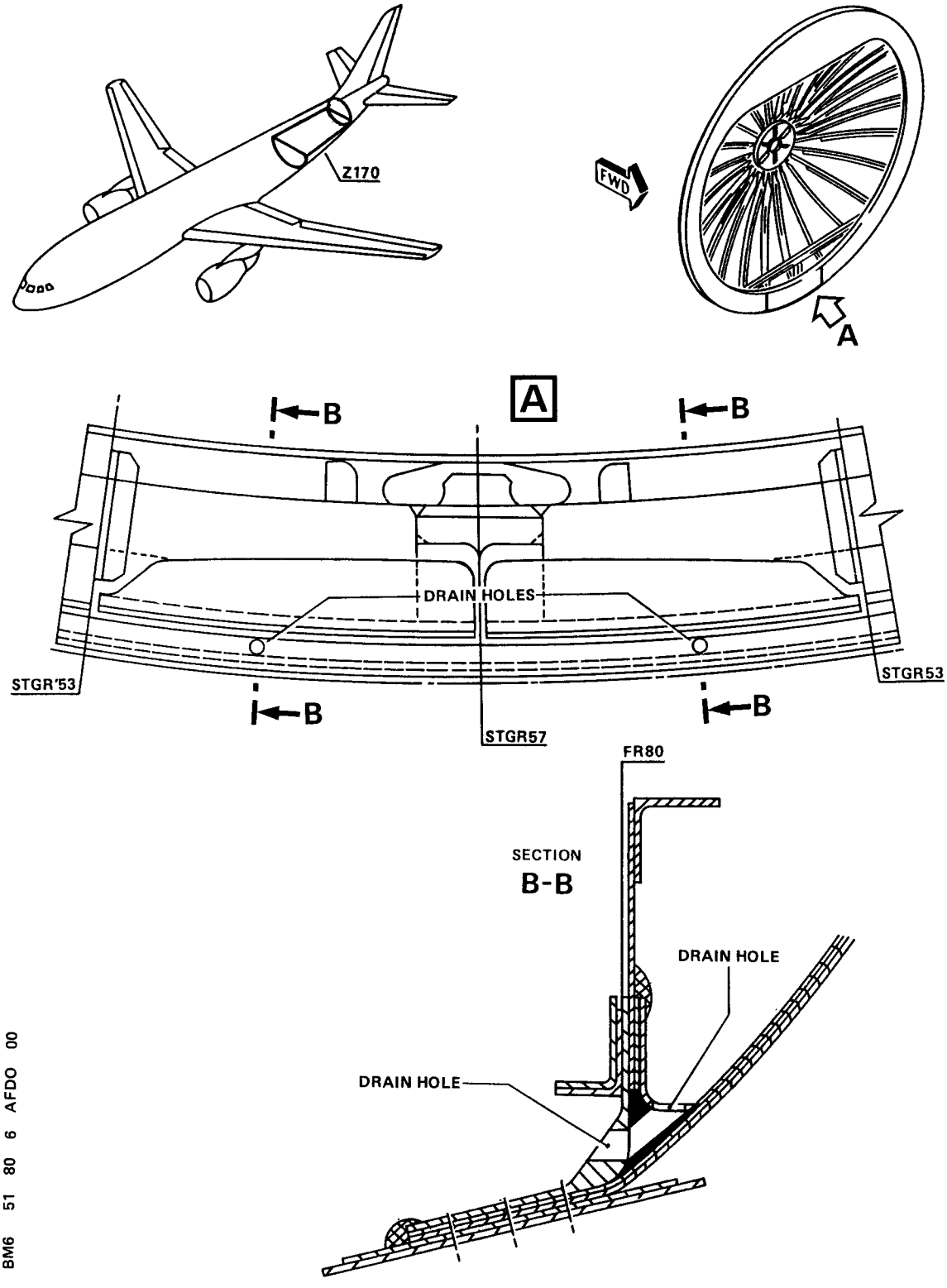
BULK Cargo Compartment Door Sill Drainage
Figure 602



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AFT Pressure Bulk Head Drainage
Figure 603

R

R J. Close-Up

(1)Make certain that working area is clean, and clear of tools and miscellaneous items of equipment.

(2)Check coating of moisture-removing oil (Mat. No. 05-027)and corrosion-preventive compound (Mat. No. 05-005) for good condition and renew if necessary (Ref. 51-75-10, P. Block 801).

(3)After inspection/check of drain valves (1) and drain plugs (2).

(a)Install the following to AFT cargo compartment:

1 Heat and sound insulation.

2 Floor panels (Ref. 53-10-33, P. Block 401).

3 Ball mats (Ref. 25-52-22, P. Block 401).

4 Sidewall panels.

(b)Install the following to BULK cargo compartment:

1 Heat and sound insulation.

2 Floor panels (Ref. 53-10-35, P. Block 401).

(4)After inspection/check of drain tubes (4).

(a)Close access door 312AR.

(b)Close APU access door 315AL.

(5)After inspection/check of AFT passenger/crew door drainage (3).

WARNING : SPECIAL PRECAUTIONS MUST BE FOLLOWED.

(a)Arm emergency operation cylinder and activate door warning system (Ref. 52-10-00, P. Block 301).

(b)Close AFT passenger/crew door.

(c)Install fuselage aft section insulation.

(d)Close aft cabin underfloor compartment access door 162AZ.

(6)Close BULK cargo compartment door.

(7)Remove safety lock and close AFT cargo compartment door (Ref. 52-30-00, P. Block 301).

(8)Remove access platform and access steps.

WING DRAINAGE - INSPECTION CHECK

WARNING : FLIGHT CONTROLS - MAKE CERTAIN THAT THE TRAVEL RANGES ARE CLEAR.

FLIGHT CONTROL - MAKE CERTAIN THAT GROUND SAFETIES AND NOTICES ARE IN POSITION.

ELECTRICAL POWER - BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ANY ELECTRICAL CIRCUIT UPON WHICH WORK IS IN PROGRESS IS ISOLATED.

HYDRAULICS - BEFORE PRESSURIZING MAKE CERTAIN CONTROLS MATCH SURFACE POSITION.

1. Access Doors, Wing Drainage Holes and Track/Screwjack Cans 3 to 11
(Ref. Fig. 601)
(Ref. Fig. 602)
(Ref. Fig. 603)

A. Reason for the Job

(1)To make certain that the drainage holes are not obstructed.

B. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform 4 to 5 m (13 to 16 ft)
B.	7 mm (0.275 in) Dia. Non-metallic Probe
C.	9.25 mm (0.375 in) Dia. Soft Rubber Tube

C. Procedure

(1)Job Set-up

(a)Position access platform

(2)Check

(a)Visually check drainage holes in leading edge access doors, wing leading edge at door 512(612)HB, wing trailing edge inboard of the flaps and in wing tip. Clear any obstruction with the non-metallic probe.

(b)At Tracks 3 to 11, insert the tip of the soft rubber tube into each track can drain pipe in turn. Blow sharply into the tubing. No restriction is to be felt. If any resistance is felt, investigate and remove the cause.

2. Leading Edge Ribs and Track/Screwjack Cans 1 and 2
(Ref. Fig. 601, 602, 603)
(Ref. Fig. 604)

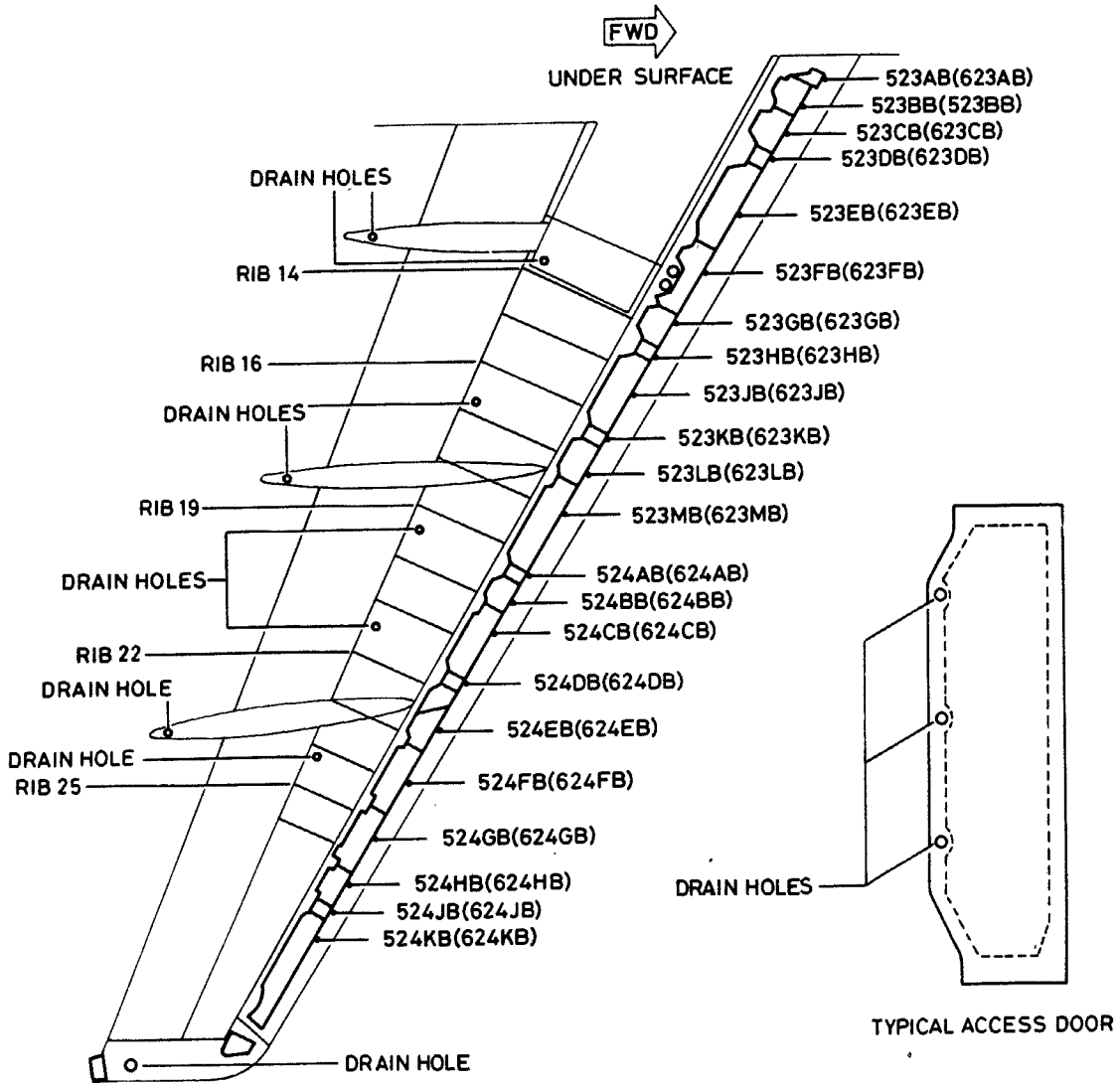
A. Reason for the Job

(1)To make certain that drainage holes are not obstructed.

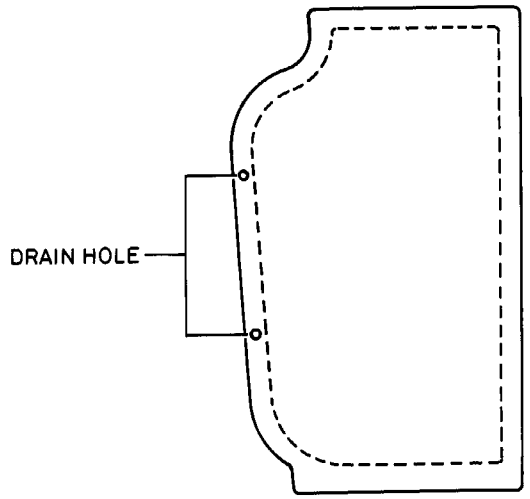
B. Equipment and Materials

ACCESS DOOR LOCATION	DRAINAGE HOLES
523AB(623AB)	1
523BB(623BB)	1
523CB(623CB)	2
523DB(623DB)	1
523EB(623EB)	4
523FB(623FB)	3(2)
523GB(623GB)	NIL
523HB(623HB)	NIL
523JB(623JB)	3
523KB(623KB)	1
523LB (623LB)	2

ACCESS DOOR LOCATION	DRAINAGE HOLES
523MB(623MB)	4
524AB(624AB)	1
524BB(624BB)	NIL
524CB(624CB)	3
524DB(624DB)	1
524EB(624EB)	1
524FB (624FB)	3
524GB (624GB)	3
524HB (624HB)	1
524 JB (624 JB)	1
524KB (624KB)	3

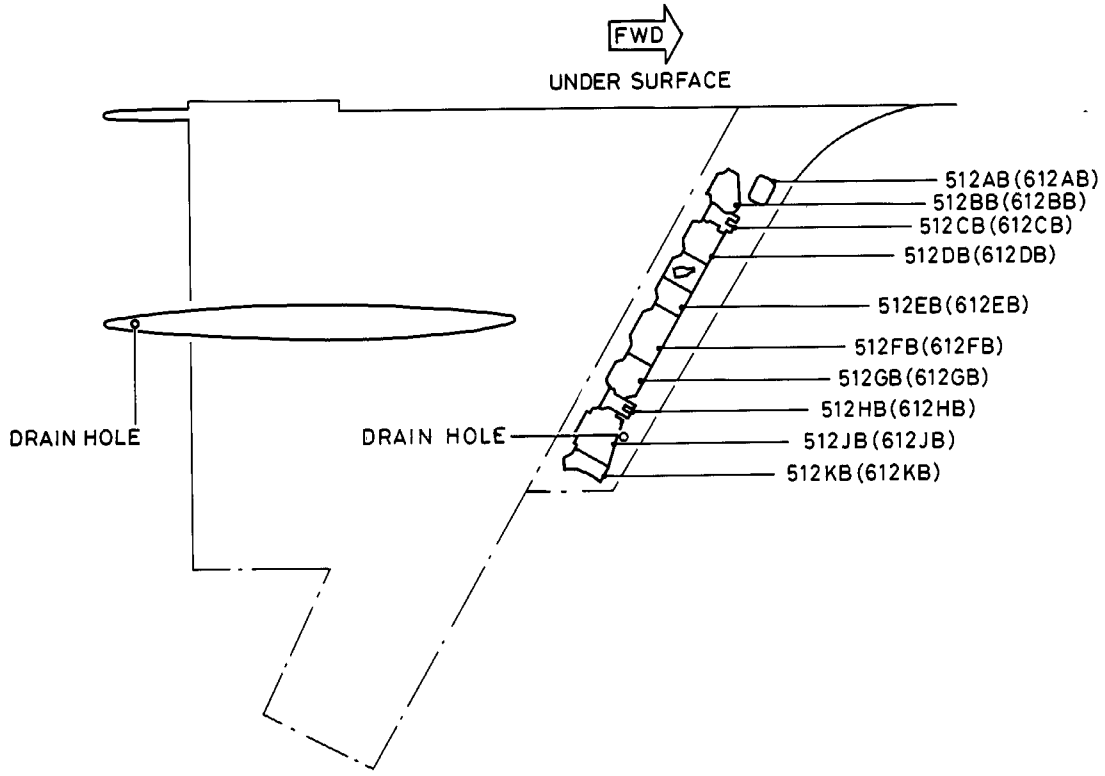


Wing Drainage Outboard Section
- Access Doors and Drainage Holes
Figure 601



TYPICAL ACCESS DOOR

ACCESS DOOR LOCATION	DRAINAGE HOLES
512AB(612AB)	1
512BB(612BB)	2
512CB(612CB)	1
512DB(612DB)	2
512EB(612EB)	1
512FB(612FB)	2
512GB(612GB)	2
512HB(612HB)	1
512JB(612JB)	2
512KB(612KB)	1



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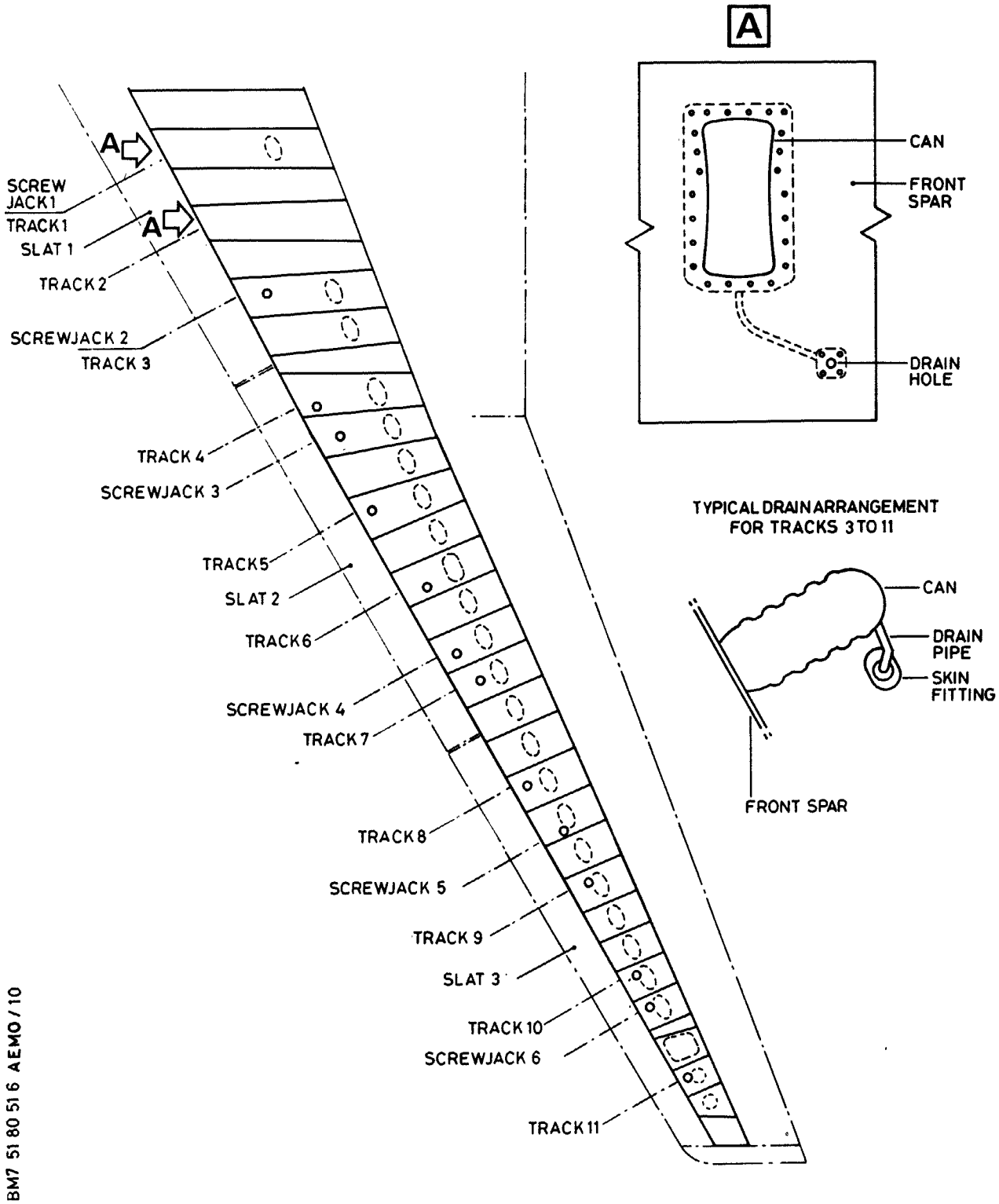
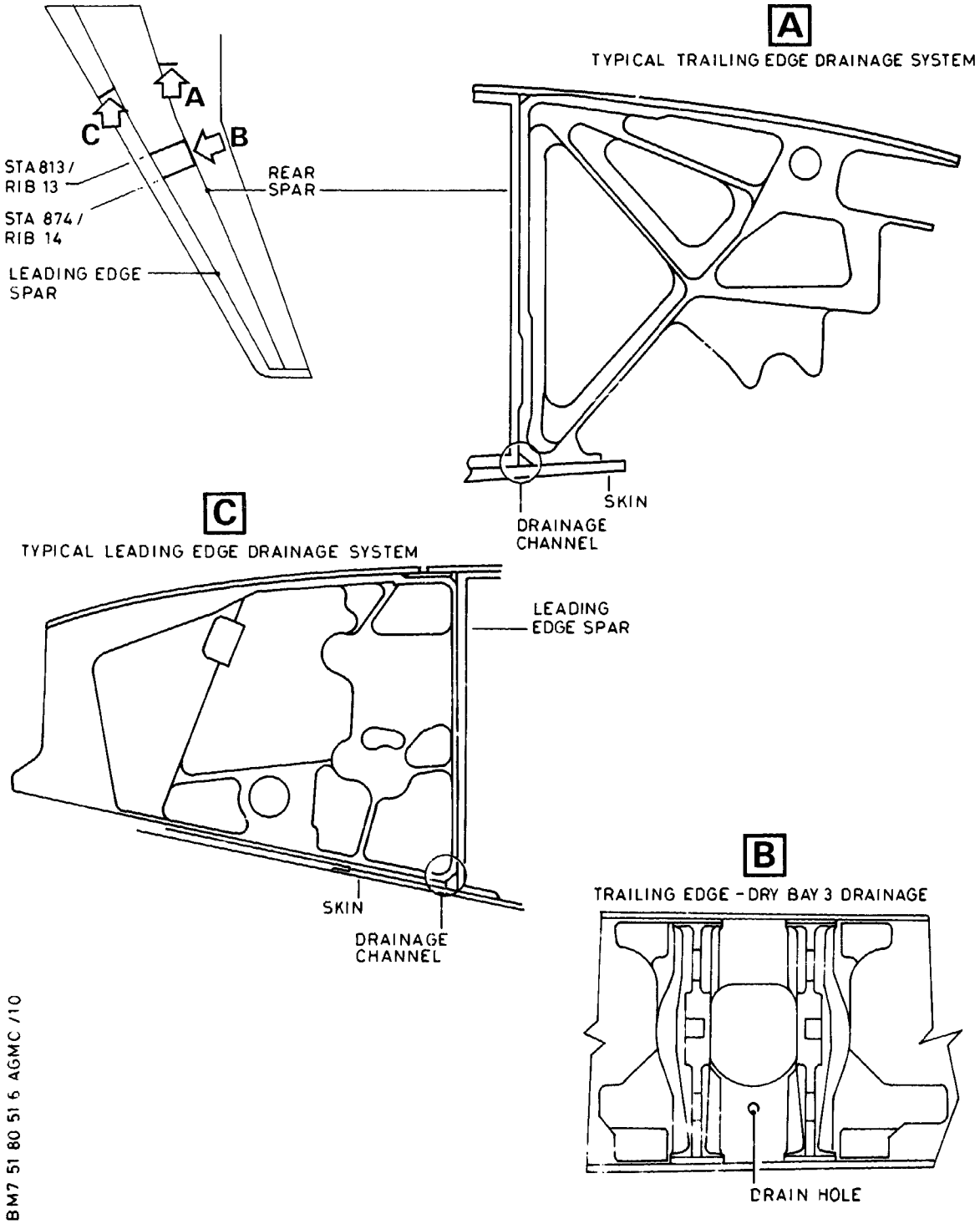
Wing Drainage Inboard Section
- Access Doors and Drainage Holes
Figure 602



Wing Drainage - Slat Track and Screwjack Cans
Figure 603



Wing Drainage - Leading and Trailing Edge Ribs and Dry Bay
Figure 604

ITEM	DESIGNATION
A.	Access Platform 4 to 5 m (13 to 16 ft)
B.	7 mm (0.275 in) Dia. Non-metallic Probe
C.	9.25 mm (0.375 in) Dia. Soft Rubber Tube

C. Procedure
(1)Job Set-up
(a)Position access platform.
(2)Check
(a)Open access doors as required.
(b)On all leading edge ribs with the exception of the rib either side of the engine pylon, which is sealed, use the non-metallic probe and make certain that the drainage channel cut-away, against the leading edge spar, is free from obstruction.
(c)Track Cans 1 and 2 only. Insert the end of the soft rubber tube into the drainage hole in the leading edge spar and blow sharply into the tube. No resistance is to be felt. If any resistance is felt, investigate and remove the cause.
(d)Make certain that the non-metallic probe and rubber tube are removed from the aircraft wing.
(e)Close access doors removed during this check.

3. Trailing Edge Ribs, Dry Bay 3 and Flap Track Fairings
(Ref. Fig. 601, 602, 604)

A. Reason for the job
(1)To make certain that drainage holes and channels are free from obstruction

B. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform 4 to 6 m (13 to 20 ft)
B.	Safety Barriers
C.	Circuit Breaker Safety Clips and Tags
D.	Warning Notices - Prohibiting Operation of Flaps
E.	7 mm (0.275 in) Dia. Non-metallic probe
Reference Procedures	
- 27-50-00, P. Block 301	Flaps

C. Procedure
(1)Job Set-up
(a)Position safety barriers to restrict access to flap area of wings.
(b)Fully extend flaps (Ref. 27-50-00, P. Block 301).
(c)On panel 133VU, open, safety and tag FLAP circuit breakers 1CV, 2CV, 5CV, 6CV, and 10CV.
(d)Display warning notices.
(e)Position access platform.
(2)Check

(a)Make certain that the drainage channel cut-away, at the bottom corner of each trailing edge rib against the rear spar, is free from obstruction.
(b)In the rear spar, in the area between wing ribs 13 and 14, make certain that the drainage hole in dry bay 3 cover is free from obstruction.
(c)At the rear of each track fairing, make certain that the drainage hole is free from obstruction.

(3)Close-up
(a)On panel 133VU, remove safety clips and tags and close FLAP circuit breakers 1CV, 2CV, 5CV, 6CV, and 10CV.
(b)Fully retract flaps (Ref. 27-50-00, P. Block 301).
(c)Remove access platform.
(d)Remove warning notices.
(e)Make certain that work area is clean and clear of tools and miscellaneous items of equipment.

PYLON DRAINAGE - INSPECTION/CHECK

1. General
The purpose of this procedure is to check that the pylon draining system is not obstructed.
As both pylon draining systems are identical, only the left pylon draining system is described.

**ON A/C 001-100,

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform 2.5m (8 ft. 2 in.)
B.	Flexible Fiberscope with insertion tube length : 2.5 m (8 ft. 2 in.)
Referenced Procedures	
- 51-74-10, P. Block 801	Removal of Corrosion
- 71-13-00, P. Block 301	Cowl Doors
- 71-70-00, P. Block 201	Engine Vents and Drains (Pylon Drain Cleaning)

**ON A/C 101-200,

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform 2.5m (8 ft. 2 in.)
B.	Flexible Fiberscope with insertion tube length : 2.5 m (8 ft. 2 in.)
Referenced Procedures	
- 51-74-10, P. Block 801	Removal of Corrosion
- 71-13-00, P. Block 301	Cowl Doors
- 71-70-51, P. Block 201	Engine Drain Lines

**ON A/C ALL

3. Procedure

A. Job Set-Up
(1)Position access platform

**ON A/C 001-100,

R (2)Remove pylon access panels 413AL (423AL), 471AL (481AL), 471BL (481BL),
R 473AL (483AL), 411DL (421DL) and 415AL (425AL).

(3)Open fan cowl doors (Ref. 71-13-00, P. Block 301).

**ON A/C 101-200,

(2)Remove pylon access panels 411DL (421DL), 471AL (481AL), 471BL (481BL), 473AL (483AL), 415AL (425AL) and 413AL (423AL).
(3)Open fan cowl doors (Ref. 71-13-00, P. Block 301).

**ON A/C 001-100,

(Ref. Fig. 601)

**ON A/C 101-200,

(Ref. Fig. 602)

**ON A/C 001-100,

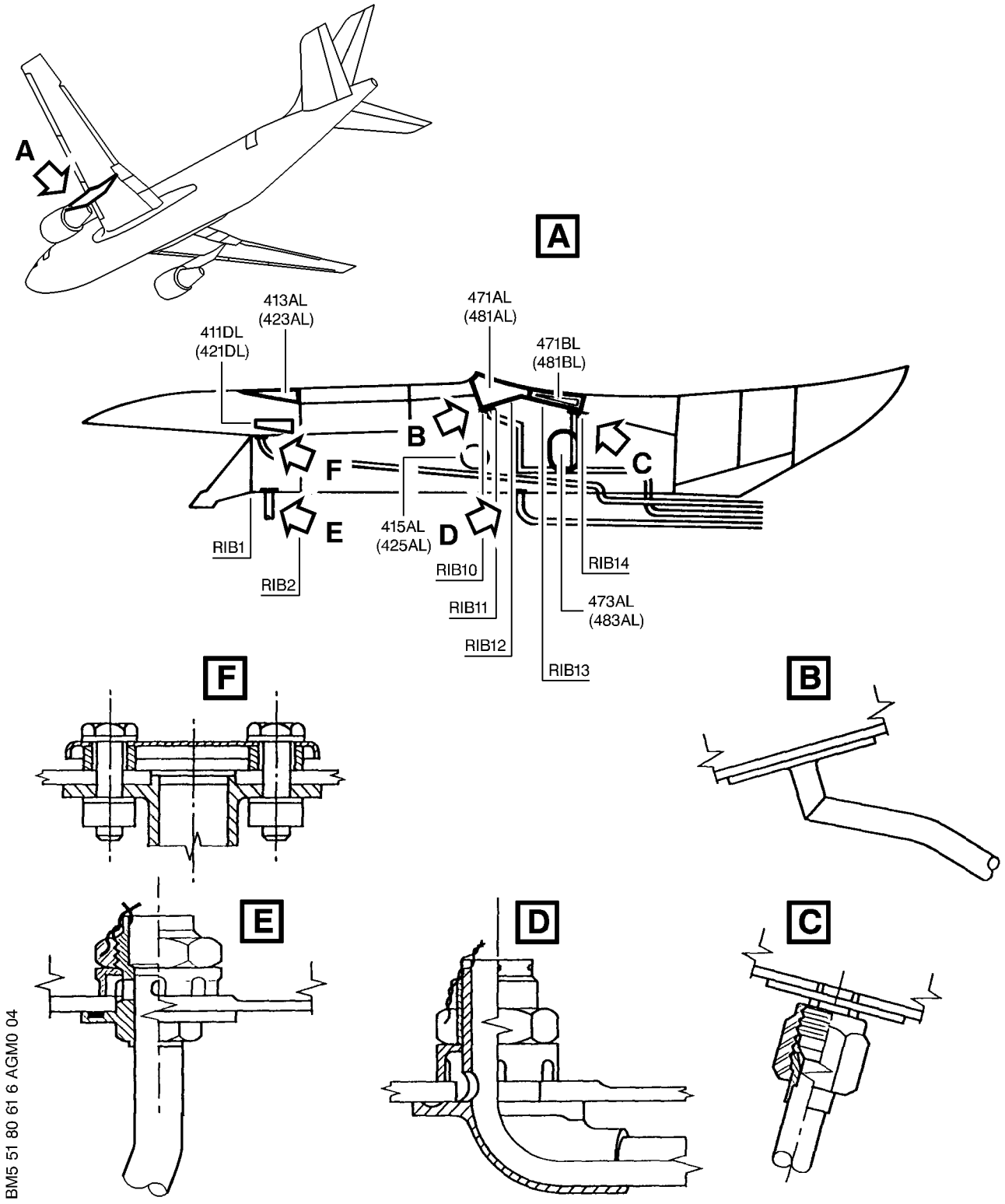
B. Inspection Check
(1)Using a compressed air source, blow air through drain fittings and lines. Check that there is airflow from corresponding inlet(s).
WARNING : WHEN CHECKING DRAINS WITH COMPRESSED AIR, MAKE CERTAIN THAT PROPER EYE PROTECTION IS BEING WORN BY AFFECTED PERSONNEL TO AVOID INJURY.

R
R (2)Boroscope inspection of pylon lower spar drain inlets.
(a)Take a flexible fiberscope with insertion tube.
(b)Make sure that these access panels are opened :
- for LH pylon : 415AL, 416AR, 473AL, 474AR
- for RH pylon : 425AL, 426AR, 483AL, 484AR.
(c)Carry out a detailed boroscope inspection of the drain holes located between RIB1 and RIB2, and between RIB12 and RIB13 for signs of contamination.

C. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Close access doors.
(3)Remove access platform.

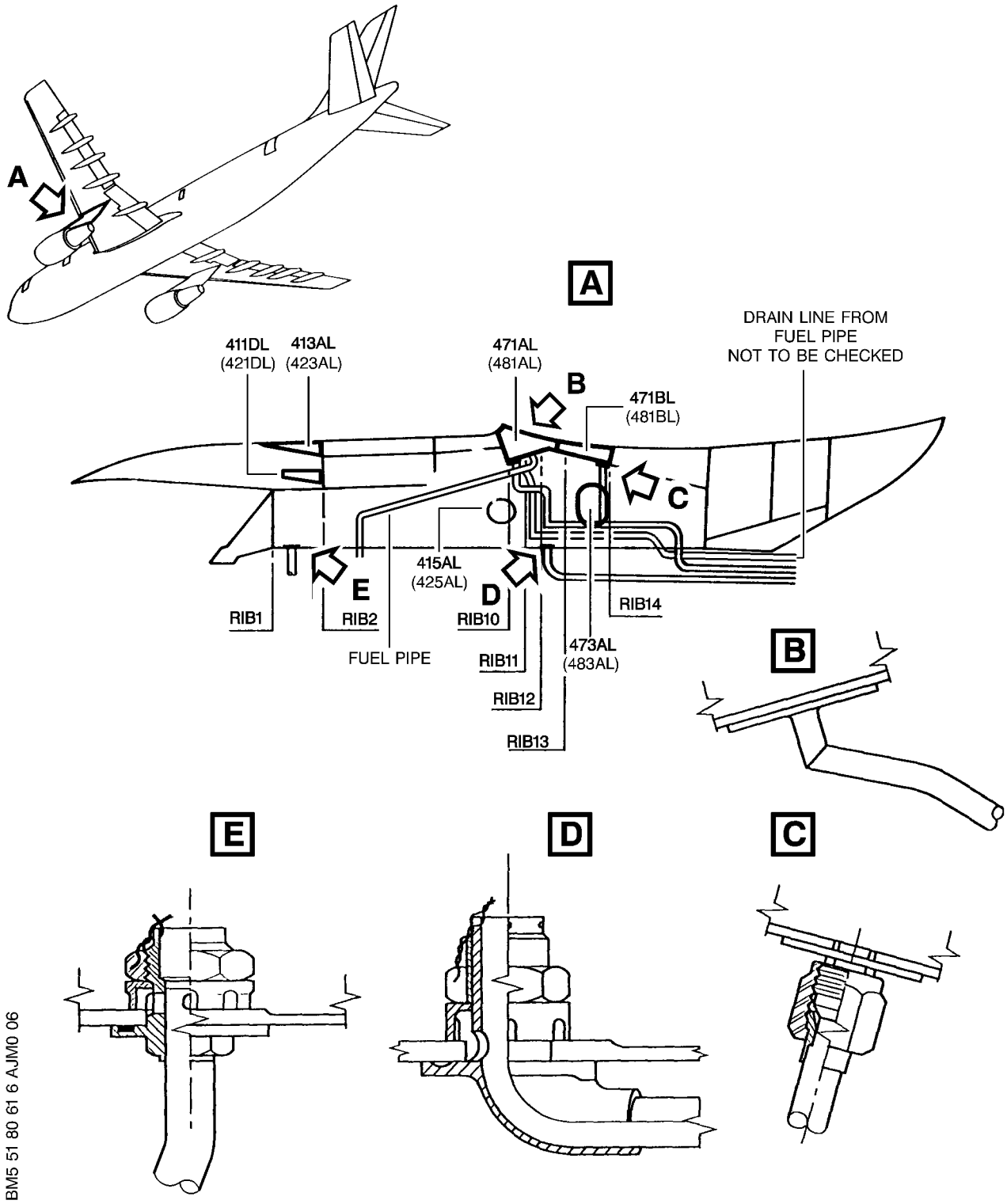
**ON A/C 101-200,

B. Inspection Check
NOTE : Do not inspect the drain line coming from the fuel line.
(1)Using a compressed air source, blow air through drain fittings and lines. Check that there is airflow from corresponding inlet(s).
WARNING : WHEN CHECKING DRAINS WITH COMPRESSED AIR, MAKE CERTAIN THAT PROPER EYE PROTECTION IS BEING WORN BY AFFECTED PERSONNEL TO AVOID INJURY.



Pylon Draining System
Figure 601

R



Pylon Draining System
Figure 602

R

R (2)Boroscope inspection of pylon lower spar drain inlets.
(a)Take a flexible fiberscope with insertion tube.
(b)Make sure that these access panels are opened :
- for LH pylon : 415AL, 416AR, 473AL, 474AR
- for RH pylon : 425AL, 426AR, 483AL, 484AR.
(c)Carry out a detailed boroscope inspection of the drain holes located between RIB1 and RIB2, and between RIB12 and RIB13 for signs of contamination.

C. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Close access doors.
(3)Remove access platform.